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# Montana Basin Outlook Report February 1, 2000



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# Basin Outlook Reports

## and

### Federal - State - Private

### Cooperative Snow Surveys

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**See Attached List**

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#### *How forecasts are made*

Most of the annual streamflow in the Western United States originates as snowfall that has accumulated high in the mountains during winter and early spring. As the snowpack accumulates, hydrologists estimate the runoff that will occur when it melts. Predictions are based on careful measurements of snow water equivalent at selected index points. Precipitation, temperature, soil moisture and antecedent streamflow data are combined with snowpack data to prepare runoff forecasts. Streamflow forecasts are coordinated by Natural Resources Conservation Service and National Weather Service hydrologists. This report presents a comprehensive picture of water supply conditions for areas dependent upon surface runoff. It includes selected streamflow forecasts, summarized snowpack and precipitation data, reservoir storage data, and narratives describing current conditions.

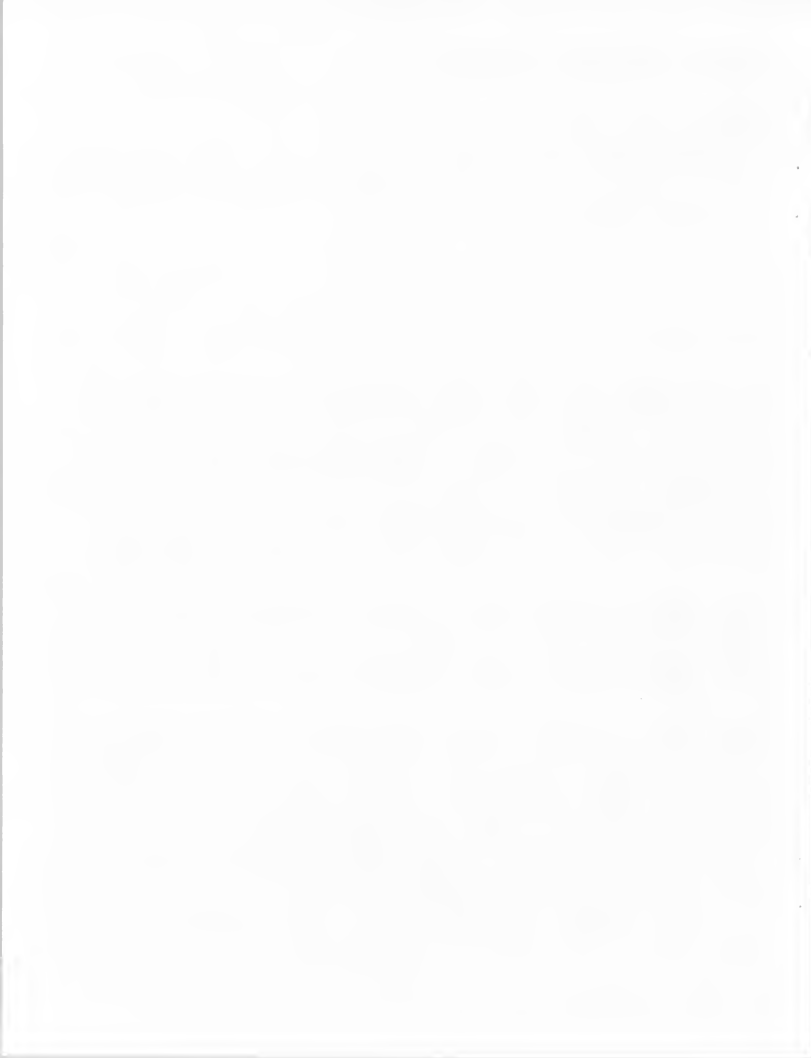
Snowpack data are obtained by using a combination of manual and automated SNOTEL measurement methods. Manual readings of snow depth and water equivalent are taken at locations called snow courses on a monthly or semi-monthly schedule during the winter. In addition, snow water equivalent, precipitation and temperature are monitored on a daily basis and transmitted via meteor burst telemetry to central data collection facilities. Both monthly and daily data are used to project snowmelt runoff.

Forecast uncertainty originates from two sources: (1) uncertainty of future hydrologic and climatic conditions, and (2) error in the forecasting procedure. To express the uncertainty in the most probable forecast, four additional forecasts are provided. The actual streamflow can be expected to exceed the most probable forecast 50% of the time. Similarly, the actual streamflow volume can be expected to exceed the 90% forecast volume 90% of the time. The same is true for the 70%, 30%, and 10% forecasts. Generally, the 90% and 70% forecasts reflect drier than normal hydrologic and climatic conditions; the 30% and 10% forecasts reflect wetter than normal conditions. As the forecast season progresses, a greater portion of the future hydrologic and climatic uncertainty will become known and the additional forecasts will move closer to the most probable forecast.

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United States Department of Agriculture  
Natural Resources Conservation Service (formerly the Soil Conservation Service)  
Bozeman, Montana

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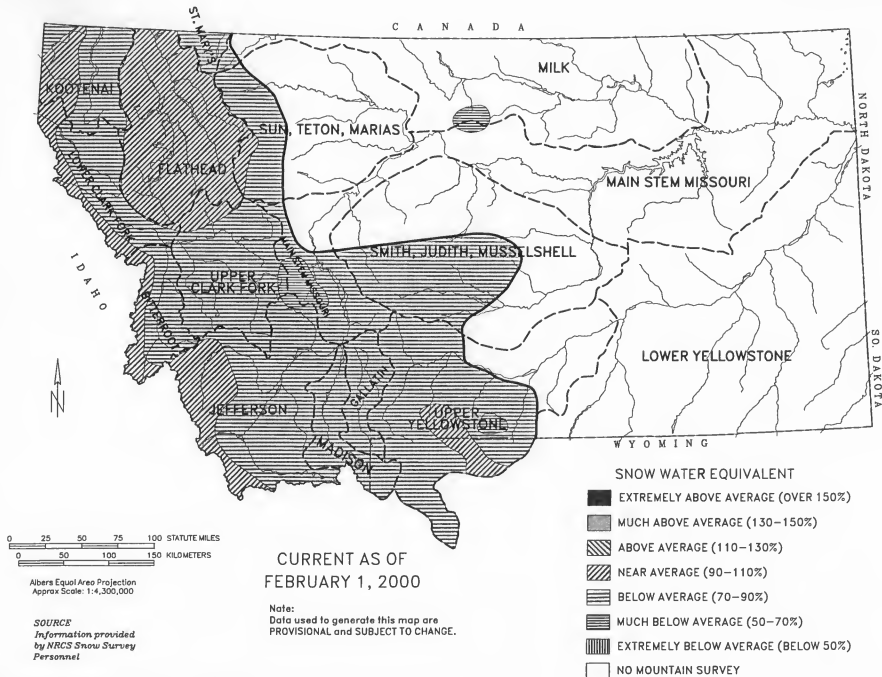
**Wibaux County**

Katrina Johnson  
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**Yellowstone County**

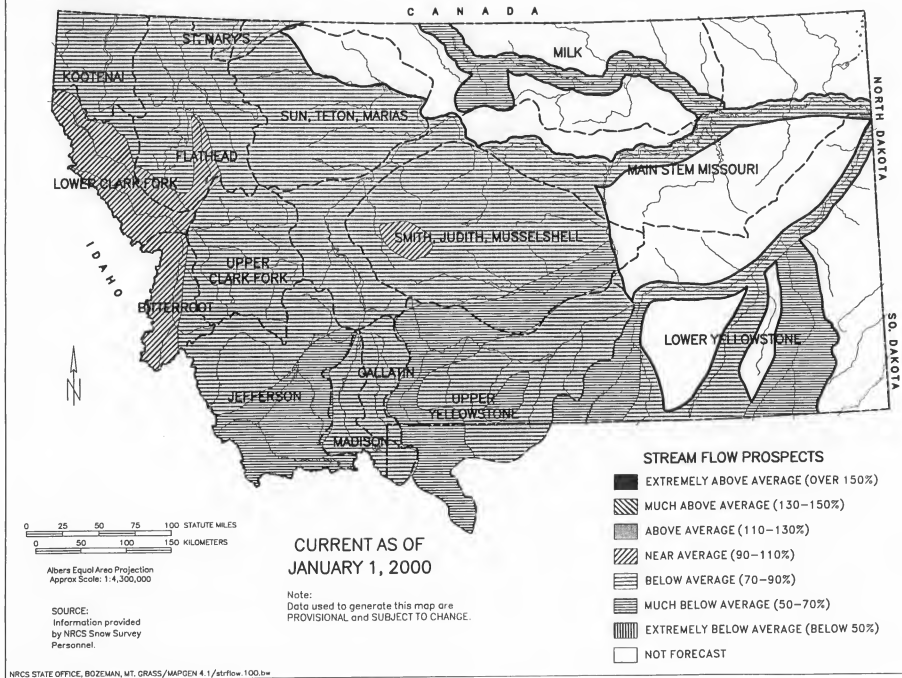
Shad Weber  
657-6135

## MOUNTAIN SNOWWATER EQUIVALENT FOR MONTANA

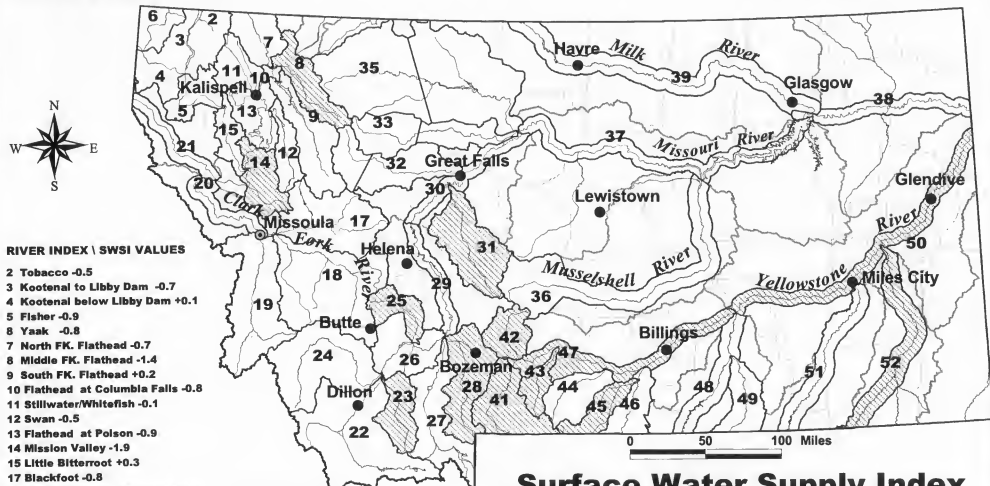












## Surface Water Supply Index (SWSI) Values

Current as of  
February 1, 2000

### SWSI VALUES

|  |                             |
|--|-----------------------------|
|  | Extremely Dry -4.0 to -3.0  |
|  | Moderately Dry -2.9 to -2.0 |
|  | Slightly Dry -1.9 to -1.0   |
|  | Near Average -0.9 to 0.9    |
|  | Slightly Wet 1.0 to 1.9     |
|  | Moderately Wet 2.0 to 2.9   |
|  | Extremely Wet 3.0 to 4.0    |
|  | SWSI Not Applicable         |

NOTE: Data used to generate  
this map are PROVISIONAL and  
SUBJECT TO CHANGE.



**NRCS** Natural Resources  
Conservation Service  
Montana

MONTANA STATE PLANE PROJECTION



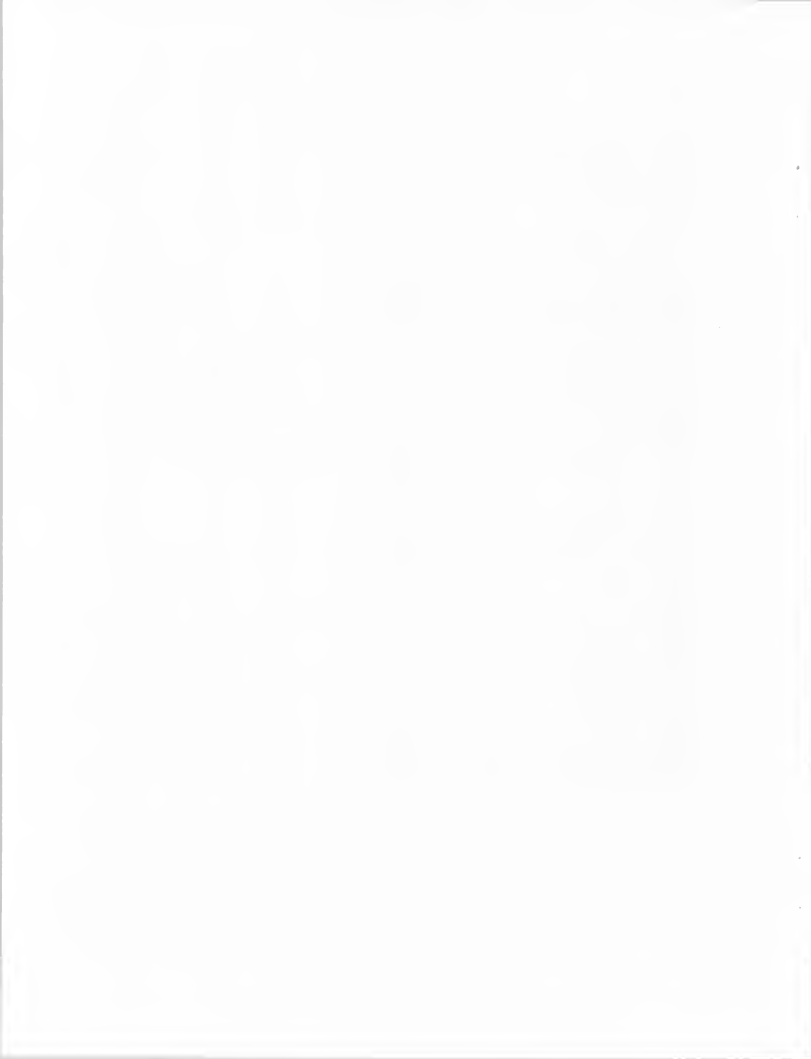
## SUMMARY OF MONTANA SNOTEL AND SNOW COURSE DATA

FEBRUARY 2000

| SNOW COURSE          | ELEVATION | DATE    | SNOW<br>DEPTH | WATER<br>CONTENT | LAST<br>YEAR | AVERAGE<br>1961-90 |
|----------------------|-----------|---------|---------------|------------------|--------------|--------------------|
| ABE LINCOLN          | 4440      | 1/27/00 | 45            | 13.3             | 17.4         | --                 |
| ALBRO LAKE PILLOW    | 8300      | 2/01/00 | ---           | 7.4              | 13.6         | 13.4               |
| ASHLEY LAKE          | 4000      | 1/25/00 | 18            | 4.4              | 4.5          | 3.9                |
| ASHLEY DIVIDE        | 4820      | 1/25/00 | 19            | 4.4              | 4.7          | 5.0                |
| BADGER PASS PILLOW   | 6900      | 2/01/00 | ---           | 18.9             | 29.8         | 22.8               |
| BANFIELD MTN PILLOW  | 5600      | 2/01/00 | ---           | 12.3             | 18.7         | 13.6               |
| BARKER LAKES PILLOW  | 8250      | 2/01/00 | ---           | 5.5              | 9.4          | 9.4                |
| BASIN CREEK PILLOW   | 7180      | 2/01/00 | ---           | 4.0              | 6.2          | 5.0                |
| BASSOO PEAK          | 5150      | 1/31/00 | 27            | 7.2              | 7.4          | --                 |
| BEAGLE SPGS PILLOW   | 8850      | 2/01/00 | ---           | 4.9              | 7.4          | 5.3                |
| BEAVER CREEK PILLOW  | 7850      | 2/01/00 | ---           | 9.9              | 12.8         | 11.6               |
| BISSON CREEK PILLOW  | 4920      | 2/01/00 | ---           | 5.4              | 5.4          | 6.9                |
| BLACK BEAR PILLOW    | 7950      | 2/01/00 | ---           | 20.6             | 31.7         | 24.5               |
| BLACK PINE PILLOW    | 7100      | 2/01/00 | ---           | 6.6              | 9.3          | 8.0                |
| BLACKTAIL            | 5650      | 1/30/00 | 33            | 9.3              | 11.0         | 8.9                |
| BLOODY DICK PILLOW   | 7550      | 2/01/00 | ---           | 8.8              | 10.3         | 8.2                |
| BOULDER MTN PILLOW   | 7950      | 2/01/00 | ---           | 10.2             | 17.2         | 12.8               |
| BOX CANYON PILLOW    | 6700      | 2/01/00 | ---           | 6.7              | 7.7          | 7.0                |
| BOXELDER CREEK       | 5100      | 1/28/00 | 22            | 4.0              | 6.0          | 5.8                |
| BRACKETT CR PILLOW   | 7320      | 2/01/00 | ---           | 12.4             | 15.9         | 12.9               |
| CALVERT CR PILLOW    | 6430      | 2/01/00 | ---           | 6.5              | 8.4          | 6.1                |
| CARROT BASIN PILLOW  | 9000      | 2/01/00 | ---           | 15.1             | 20.1         | 17.3               |
| CHESSMAN RESERVOIR   | 6200      | 1/27/00 | 7             | 1.1              | 2.6          | 2.7                |
| CHICKEN CREEK        | 4060      | 1/27/00 | 48            | 12.8             | 14.6         | 10.9               |
| CLOVER MDW PILLOW    | 8800      | 2/01/00 | ---           | 9.0              | 11.2         | 11.5               |
| COLE CREEK PILLOW    | 7850      | 2/01/00 | ---           | 4.9              | 6.6          | 10.2               |
| COMBINATION PILLOW   | 5600      | 2/01/00 | ---           | 2.6              | 4.1          | 3.8                |
| COPPER BOTTOM PILLOW | 5200      | 2/01/00 | ---           | 7.9              | 10.8         | 7.4                |
| COPPER CAMP PILLOW   | 6950      | 2/01/00 | ---           | 19.7             | 29.2         | 22.6               |
| COPPER CREEK         | 5700      | 1/29/00 | 27            | 7.1              | --           | --                 |
| COYOTE HILL          | 4200      | 1/27/00 | 31            | 7.1              | 8.9          | 7.5                |
| CREVICE MOUNTAIN     | 8400      | 1/25/00 | 30            | 6.8              | 8.8          | --                 |
| CRYSTAL LAKE PILLOW  | 6050      | 2/01/00 | ---           | 7.3              | 6.5          | 8.4                |
| DAISY PEAK           | 7600      | 1/27/00 | 23            | 5.2              | 8.0          | 7.0                |
| DAISY PEAK PILLOW    | 7600      | 2/01/00 | ---           | 5.8              | 8.0          | 8.8                |
| DAISY PEAK           | 7600      | 1/27/00 | 23            | 5.2              | 8.0          | 7.0                |
| DALY CREEK PILLOW    | 5780      | 2/01/00 | ---           | 7.0              | 9.3          | 7.8                |
| DARKHORSE LK. PILLOW | 8700      | 2/01/00 | ---           | 21.7             | 24.4         | 22.0               |
| DEADMAN CR PILLOW    | 6450      | 2/01/00 | ---           | 8.3              | 8.2          | 6.7                |
| DISCOVERY BASIN      | 7050      | 1/28/00 | 26            | 5.0              | 7.4          | 6.8                |
| DIVIDE PILLOW        | 7800      | 2/01/00 | ---           | 4.5              | 6.3          | 6.9                |
| DIX HILL             | 6400      | 1/29/00 | 27            | 7.6              | 8.6          | 8.2                |
| DUPUYER CREEK PILLOW | 5750      | 2/01/00 | ---           | 5.0              | 9.0          | 7.8                |

| SNOW COURSE          | ELEVATION | DATE    | SNOW<br>DEPTH | WATER<br>CONTENT | LAST<br>YEAR | AVERAGE<br>1961-90 |
|----------------------|-----------|---------|---------------|------------------|--------------|--------------------|
| EMERY CREEK PILLOW   | 4350      | 2/01/00 | ---           | 10.4             | 11.2         | 10.9               |
| FISH CREEK           | 8000      | 1/28/00 | 19            | 4.0              | 8.3          | 6.4                |
| FISHER CREEK PILLOW  | 9100      | 2/01/00 | ---           | 20.6             | 27.4         | 24.2               |
| FLATTOP MTN PILLOW   | 6300      | 2/01/00 | ---           | 26.7             | 42.5         | 32.3               |
| FOURTH OF JULY       | 3450      | 1/27/00 | 28            | 7.2              | 7.4          | 6.4                |
| FROHNER MDWS PILLOW  | 6480      | 2/01/00 | ---           | 3.5              | 5.3          | 5.6                |
| GARVER CREEK PILLOW  | 4250      | 2/01/00 | ---           | 6.3              | 8.3          | 7.3                |
| GRAVE CRK PILLOW     | 4300      | 2/01/00 | ---           | 10.3             | 11.8         | 11.9               |
| GRIFFIN CR DIVIDE    | 5150      | 1/31/00 | 27            | 7.0              | 9.4          | --                 |
| HAND CREEK PILLOW    | 5030      | 2/01/00 | ---           | 7.8              | 9.1          | 8.3                |
| HAWKINS LAKE PILLOW  | 6450      | 2/01/00 | ---           | 13.6             | 24.1         | 19.3               |
| HEBGEN DAM           | 6550      | 1/28/00 | 32            | 8.2              | 7.0          | 8.3                |
| HELL ROARING DIVIDE  | 5770      | 1/27/00 | 66            | 19.1             | 23.2         | 20.5               |
| HERRIG JUNCTION      | 4850      | 1/27/00 | 57            | 16.0             | 20.9         | 16.7               |
| HOLBROOK             | 4530      | 1/30/00 | 27            | 7.0              | 7.1          | 7.2                |
| HOODOO BASIN         | 6050      | 1/28/00 | 98            | 29.2             | 41.4         | 33.4               |
| HOODOO BASIN PILLOW  | 6050      | 2/01/00 | ---           | 26.8             | 39.2         | 31.0               |
| INTERGAARD           | 6450      | 1/27/00 | 17            | 3.2              | 5.5          | 5.2                |
| JOHNSON PARK         | 6450      | 1/27/00 | 19            | 4.6              | 5.4          | 4.8                |
| KRAFT CREEK PILLOW   | 4750      | 2/01/00 | ---           | 11.2             | 10.3         | 11.4               |
| LAKEVIEW RDG. PILLOW | 7400      | 2/01/00 | ---           | 3.8              | 8.7          | 8.3                |
| LEMHI RIDGE PILLOW   | 8100      | 2/01/00 | ---           | 6.5              | 7.7          | 6.9                |
| LEWIS CREEK PILLOW   | 6860      | 2/01/00 | ---           | 5.1              | 6.0          | 8.1                |
| LONE MOUNTAIN PILLOW | 8880      | 2/01/00 | ---           | 10.5             | 13.7         | 11.5               |
| LOWER TWIN PILLOW    | 7900      | 2/01/00 | ---           | 9.0              | 12.1         | 12.3               |
| LUBRECHT PILLOW      | 4680      | 2/01/00 | ---           | 4.0              | 3.7          | 4.5                |
| LUBRECHT FOREST NO 3 | 5450      | 1/31/00 | 18            | 4.2              | 4.7          | 5.0                |
| LUBRECHT FOREST NO 4 | 4650      | 1/31/00 | 10            | 2.0              | 1.8          | 2.7                |
| LUBRECHT FOREST NO 6 | 4040      | 1/31/00 | 11            | 2.2              | 2.0          | 3.2                |
| LUBRECHT HYDROPLT    | 4200      | 1/31/00 | 18            | 3.5              | 4.6          | 5.4                |
| MADISON PLT PILLOW   | 7750      | 2/01/00 | ---           | 11.0             | 22.9         | 16.1               |
| MANY GLACIER PILLOW  | 4900      | 2/01/00 | ---           | 10.4             | 14.7         | 11.4               |
| MARIAS PASS          | 5250      | 1/31/00 | 36            | 12.0             | 16.4         | 11.2               |
| MAYNARD CREEK        | 6210      | 1/26/00 | 29            | 6.3              | 10.2         | 9.7                |
| MONUMENT PK PILLOW   | 8850      | 2/01/00 | ---           | 13.0             | 17.6         | 13.9               |
| MOSS PEAK PILLOW     | 6780      | 2/01/00 | ---           | 19.9             | 24.5         | 24.4               |
| MT LOCKHART PILLOW   | 6400      | 2/01/00 | ---           | 12.8             | 19.5         | 14.0               |
| MULE CREEK PILLOW    | 8300      | 2/01/00 | ---           | 11.0             | 12.7         | 10.2               |
| NEVADA RIDGE PILLOW  | 7020      | 2/01/00 | ---           | 10.1             | 13.9         | 9.1                |
| NEW WORLD            | 6900      | 1/26/00 | 27            | 6.2              | 8.8          | 9.6                |
| NEWTON MOUNTAIN      | 5600      | 1/26/00 | 66            | 22.1             | 30.8         | 22.2               |
| NEZ PERCE CMP PILLOW | 5650      | 2/01/00 | ---           | 10.7             | 11.4         | 9.8                |
| NEZ PERCE CREEK      | 6600      | 1/29/00 | 18            | 3.9              | 5.2          | 4.5                |
| NOISY BASIN PILLOW   | 6040      | 2/01/00 | ---           | 24.9             | 28.9         | 26.2               |
| N.F. ELK CR PILLOW   | 6250      | 2/01/00 | ---           | 7.4              | 9.1          | 8.1                |
| NF JOCKO PILLOW      | 6330      | 2/01/00 | ---           | 28.7             | 34.4         | 28.6               |
| N.E. ENTRANCE PILLOW | 7350      | 2/01/00 | ---           | 7.3              | 8.6          | 6.4                |
| OPHIR PARK           | 7150      | 1/29/00 | 32            | 8.4              | 12.9         | 11.2               |
| PETERSON MDW PILLOW  | 7200      | 2/01/00 | ---           | 4.3              | 6.4          | 6.5                |

| SNOW COURSE          | ELEVATION | DATE    | SNOW<br>DEPTH | WATER<br>CONTENT | LAST<br>YEAR | AVERAGE<br>1961-90 |
|----------------------|-----------|---------|---------------|------------------|--------------|--------------------|
| PICKFOOT CRK PILLOW  | 6650      | 2/01/00 | ---           | 5.6              | 9.1          | 7.1                |
| PIKE CREEK PILLOW    | 5930      | 2/01/00 | ---           | 14.9             | 24.0         | 17.1               |
| PIPESTONE PASS       | 7200      | 1/30/00 | 8             | 2.4              | 5.2          | 3.3                |
| PLACER BASIN PILLOW  | 8830      | 2/01/00 | ---           | 10.4             | 12.0         | 12.4               |
| PORCUPINE PILLOW     | 6500      | 2/01/00 | ---           | 3.4              | 4.5          | 4.8                |
| RED TOP              | 5260      | 1/26/00 | 58            | 18.2             | 25.5         | 18.4               |
| ROCKER PEAK PILLOW   | 8000      | 2/01/00 | ---           | 5.9              | 9.1          | 9.8                |
| ROCKY BOY PILLOW     | 4700      | 2/01/00 | ---           | 2.5              | 4.2          | 3.6                |
| ROCKY BOY            | 4700      | 1/28/00 | 12            | 1.6              | 3.8          | 3.2                |
| SADDLE MTN PILLOW    | 7900      | 2/01/00 | ---           | 14.1             | 21.3         | 17.0               |
| SHORT CREEK PILLOW   | 7000      | 2/01/00 | ---           | 2.8              | 3.4          | 3.6                |
| SHOWER FALLS PILLOW  | 8100      | 2/01/00 | ---           | 11.7             | 13.7         | 14.8               |
| SKAKKAHO PILLOW      | 7260      | 2/01/00 | ---           | 14.1             | 19.6         | 15.8               |
| S. F. SHIELDS PILLOW | 8100      | 2/01/00 | ---           | 7.1              | 11.1         | 10.7               |
| SPOTTED BEAR MTN.    | 7000      | 1/30/00 | 34            | 9.7              | 10.0         | 10.3               |
| SPUR PARK PILLOW     | 8100      | 2/01/00 | ---           | 12.6             | 18.1         | 14.8               |
| SLEEPING WOMAN PILL  | 6150      | 2/01/00 | ---           | 9.6              | 13.7         | 9.9                |
| STAHL PEAK PILLOW    | 6030      | 2/01/00 | ---           | 20.2             | 28.6         | 23.5               |
| STORM LAKE           | 7780      | 1/27/00 | 28            | 5.8              | 9.0          | 8.7                |
| STRYKER BASIN        | 6180      | 1/27/00 | 62            | 17.6             | 24.4         | 21.6               |
| STUART MOUNTAIN      | 7400      | 1/30/00 | 66            | 21.2             | 28.0         | 21.2               |
| STUART MOUNTAIN PILL | 7400      | 2/01/00 | ---           | 20.4             | 26.1         | 20.3               |
| SUCKER CREEK         | 3960      | 1/28/00 | 3             | .5               | .0           | .5                 |
| TAYLOR ROAD          | 4080      | 1/28/00 | 9             | 1.2              | 3.2          | 2.9                |
| TEN MILE LOWER       | 6600      | 1/27/00 | 17            | 2.8              | 4.0          | 5.0                |
| TEN MILE MIDDLE      | 6800      | 1/27/00 | 21            | 4.2              | 6.4          | 7.6                |
| TEPEE CREEK PILLOW   | 8000      | 2/01/00 | ---           | 7.0              | 8.8          | 8.6                |
| TIZER BASIN PILLOW   | 6840      | 2/01/00 | ---           | 5.3              | 5.8          | 7.2                |
| TRINKUS LAKE         | 6100      | 1/30/00 | 84            | 26.0             | 28.8         | 25.0               |
| TRUMAN CREEK         | 4060      | 1/25/00 | 14            | 2.8              | 2.8          | 3.2                |
| TV MOUNTAIN          | 6800      | 1/30/00 | 38            | 10.4             | 15.6         | 12.0               |
| TWELVEMILE PILLOW    | 5600      | 2/01/00 | ---           | 13.8             | 15.3         | 12.5               |
| TWENTY-ONE MILE      | 7150      | 1/31/00 | 34            | 10.1             | 14.2         | 11.7               |
| TWIN LAKES PILLOW    | 6400      | 2/01/00 | ---           | 28.8             | 36.9         | 26.3               |
| UPPER HOLLAND LAKE   | 6200      | 1/30/00 | 79            | 24.7             | 25.0         | 23.4               |
| WALDRON PILLOW       | 5600      | 2/01/00 | ---           | 7.4              | 10.7         | 7.8                |
| WARM SPRINGS PILLOW  | 7800      | 2/01/00 | ---           | 11.8             | 15.6         | 14.1               |
| WEASEL DIVIDE        | 5450      | 1/31/00 | 62            | 20.6             | 29.5         | 21.8               |
| WEST YELLOWSTONE     | 6700      | 1/30/00 | 25            | 5.6              | 8.2          | 7.8                |
| WEST YELL'ST PILLOW  | 6700      | 2/01/00 | ---           | 5.2              | 9.7          | 7.8                |
| WHISKEY CREEK PILLOW | 6800      | 2/01/00 | ---           | 8.3              | 13.4         | 11.2               |
| WHITE MILL PILLOW    | 8700      | 2/01/00 | ---           | 15.8             | 18.4         | 16.8               |
| WOOD CREEK PILLOW    | 5960      | 2/01/00 | ---           | 6.0              | 8.1          | 7.1                |





# Montana Water Supply Outlook Report as of February 1, 2000

Weather patterns coming into Montana have been mainly following the divide between Montana and Idaho and across the northern part of Montana into the mountain ranges near Glacier National Park. The only major storm system during January occurred between January 10 and January 12. Other storm events continued to produce scattered snow showers and were hit or miss. Temperatures continued to be mild, generally ranging from 2 to 8 degrees above average with the exception of the eastern plain where temperatures were 8 to 12 degrees above average.

## Snowpack

As of February 1, mountain snow water contents were ranging from severely below average to slightly above average. Overall the mountain snowpack averages out to be 12 percent below average and 26 percent below last year at this time. Snow water content across Montana was 88 percent of average and 74 percent of last year. West of the Continental Divide, snowpack was 93 percent of average and 75 percent of last year and East of the continental Divide, snowpack was 81 percent of average and 72 percent of last year.

Montana snowpack extremes were the highest in the Kootenai Mainstem at 110 percent of average and the lowest in the Bearpaw Mountains at 64 percent of average. The Wind River and Bighorn River Basins in Wyoming (headwaters of the Bighorn River) have several sites that are tied or have set new record low snow water content readings.

| RIVER BASIN                   | % OF AVERAGE | % OF LAST YEAR |
|-------------------------------|--------------|----------------|
| COLUMBIA .....                | 93 .....     | 75             |
| KOOTENAI .....                | 97 .....     | 70             |
| FLATHEAD .....                | 93 .....     | 79             |
| UPPER CLARK FORK .....        | 84 .....     | 74             |
| BITTERROOT .....              | 100 .....    | 76             |
| LOWER CLARK FORK .....        | 102 .....    | 74             |
| MISSOURI .....                | 80 .....     | 70             |
| MISSOURI HEADWATERS .....     | 79 .....     | 70             |
| JEFFERSON .....               | 79 .....     | 71             |
| MADISON .....                 | 78 .....     | 68             |
| GALLATIN .....                | 81 .....     | 76             |
| MISSOURI MAINSTEM .....       | 81 .....     | 70             |
| HEADWATERS MAINSTEM .....     | 72 .....     | 67             |
| SMITH-JUDITH-MUSSELSHELL ..   | 85 .....     | 75             |
| SUN-TETON-MARIAS .....        | 88 .....     | 66             |
| MAINSTEM ABOVE FT. PECK RES   | 83 .....     | 69             |
| MILK .....                    | 67 .....     | 55             |
| ST. MARY .....                | 85 .....     | 65             |
| ST. MARY & MILK .....         | 78 .....     | 61             |
| YELLOWSTONE .....             | 81 .....     | 74             |
| UPPER YELLOWSTONE .....       | 84 .....     | 71             |
| LOWER YELLOWSTONE (WYOMING) . | 79 .....     | 75             |
| WIND .....                    | 68 .....     | 63             |
| SHOSHONE .....                | 81 .....     | 62             |
| BIGHORN .....                 | 82 .....     | 72             |
| TONGUE .....                  | 93 .....     | 103            |
| POWDER .....                  | 78 .....     | 91             |

## Precipitation

January mountain and valley precipitation across the state was 92 percent of average and 82 percent of last year, while the water year precipitation was 95 percent of average and 82 percent of last year. West of the Continental Divide, January mountain and valley precipitation was 94 percent of average and 90 percent of last year and the water year precipitation was 106 percent of average and 90 percent of last year. East of the Divide, January mountain and valley precipitation was 89 percent of average and 75 percent of last year and the water year precipitation was 84 percent of average and 75 percent of last year.

| RIVER BASIN                 | JANUARY<br>% OF AVERAGE | WATER YEAR<br>% OF AVERAGE |
|-----------------------------|-------------------------|----------------------------|
| COLUMBIA                    | 94                      | 106                        |
| KOOTENAI                    | 89                      | 107                        |
| FLATHEAD                    | 101                     | 116                        |
| UPPER CLARK FORK            | 83                      | 92                         |
| BITTERROOT                  | 99                      | 101                        |
| LOWER CLARK FORK            | 103                     | 110                        |
| MISSOURI                    | 88                      | 85                         |
| JEFFERSON                   | 92                      | 81                         |
| MADISON                     | 89                      | 80                         |
| GALLATIN                    | 88                      | 79                         |
| MISSOURI MAINSTEM           | 45                      | 50                         |
| SMITH-JUDITH-MUSSELSHELL    | 72                      | 81                         |
| SUN-TETON-MARIAS            | 100                     | 112                        |
| MILK                        | 93                      | 79                         |
| ST. MARY                    | 107                     | 119                        |
| YELLOWSTONE                 | 104                     | 80                         |
| UPPER YELLOWSTONE           | 98                      | 82                         |
| LOWER YELLOWSTONE (WYOMING) | 122                     | 83                         |
| WIND                        | 120                     | 68                         |
| SHOSHONE                    | 126                     | 89                         |
| BIGHORN                     | 105                     | 86                         |
| TONGUE                      | 143                     | 99                         |
| POWDER                      | 135                     | 99                         |

## Reservoirs

Major reservoir storages statewide were 103 percent of average and 102 percent of last year. Reservoir storage west of the Continental Divide was 101 percent of average and 103 percent of last year. East of the Continental Divide, reservoir storages were 107 percent of average and 101 percent of last year.

| RIVER BASIN              | % OF AVERAGE | % OF LAST YEAR |
|--------------------------|--------------|----------------|
| COLUMBIA                 | 101          | 103            |
| KOOTENAI                 | 105          | 96             |
| FLATHEAD                 | 98           | 108            |
| UPPER CLARK FORK         | 110          | 98             |
| BITTERROOT               | 59           | 97             |
| LOWER CLARK FORK         | 103          | 104            |
| MISSOURI                 | 106          | 98             |
| JEFFERSON                | 110          | 100            |
| MADISON                  | 125          | 105            |
| GALLATIN                 | 98           | 92             |
| MISSOURI MAINSTEM        | 97           | 94             |
| SMITH-JUDITH-MUSSELSHELL | 99           | 83             |
| SUN-TETON-MARIAS         | 119          | 105            |
| MILK                     | 92           | 98             |
| ST. MARY                 | 91           | 176            |
| YELLOWSTONE              | 113          | 112            |
| UPPER YELLOWSTONE        | 102          | 100            |
| LOWER YELLOWSTONE        | 113          | 112            |

## Streamflow

Across Montana, streamflows are forecast to average between 65 to 95 percent. West of the Continental Divide, streamflows are forecast to average between 77 and 100 percent. East of the Continental Divide, streamflows are forecast to average between 54 and 90 percent. Should the current weather pattern continue there could be shortages of surface water in unregulated streams. Those areas that experienced surface water shortages last year need to monitor this years streamflow forecasts closely.

Below are River Basin streamflow forecast summaries for the period April 1 through July 31. THESE FORECASTS ASSUME NEAR NORMAL SPRING CONDITIONS AND DO NOT ACCOUNT FOR WELL BELOW AVERAGE (70% or less) OR WELL ABOVE AVERAGE (130% or more) PRECIPITATION, SNOWMELT OR SPRING RAIN. Specific forecast probabilities are available in each individual River Basin Report.

| RIVER BASIN                 | April-July   | April-July   |
|-----------------------------|--------------|--------------|
|                             | THIS YEAR    | LAST YEAR    |
|                             | % OF AVERAGE | % OF AVERAGE |
| COLUMBIA .....              | 77 to 100    | 100 to 122   |
| KOOTENAI .....              | 75 to 99     | 101 to 121   |
| FLATHEAD .....              | 82 to 99     | 100 to 117   |
| UPPER CLARK FORK .....      | 63 to 95     | 92 to 125    |
| BITTERROOT .....            | 84 to 106    | 106 to 127   |
| LOWER CLARK FORK .....      | 80 to 102    | 100 to 122   |
| MISSOURI .....              | 67 to 95     | 95 to 127    |
| JEFFERSON .....             | 51 to 87     | 86 to 120    |
| MADISON .....               | 77 to 93     | 98 to 114    |
| GALLATIN .....              | 72 to 94     | 84 to 107    |
| MISSOURI MAINSTEM .....     | 64 to 90     | 97 to 124    |
| SMITH-JUDITH-MUSSELSHELL .. | 66 to 102    | 98 to 136    |
| SUN-TETON-MARIAS .....      | 69 to 106    | 110 to 145   |
| MILK .....                  | 32 to 87     | 95 to 144    |
| ST. MARY .....              | 74 to 87     | 106 to 118   |
| YELLOWSTONE .....           | 62 to 88     | 92 to 118    |
| UPPER YELLOWSTONE .....     | 69 to 90     | 96 to 117    |
| LOWER YELLOWSTONE .....     | 55 to 85     | 89 to 118    |

NOTE: The APRIL-JULY LAST YEAR % OF AVERAGE column above, is what was forecast last year, NOT what actually occurred.

# Surface Water Supply Index

The Surface Water Supply Index (SWSI) is an indicator of surface water supply conditions for the spring and summer months. Water users that rely on mountain precipitation can use the index to evaluate seasonal surface water supplies. The SWSI accounts for mountain snowpack, mountain precipitation, streamflow, reservoir storage, and soil moisture.

| SWSI RATING  | SURFACE WATER CONDITION |
|--------------|-------------------------|
| +3.0 to +4.0 | Extremely Wet           |
| +2.0 to +3.0 | Moderately Wet          |
| +1.0 to +2.0 | Slightly Wet            |
| -1.0 to +1.0 | Near Average            |
| -1.0 to -2.0 | Slightly Dry            |
| -2.0 to -3.0 | Moderately Dry          |
| -3.0 to -4.0 | Extremely Dry           |

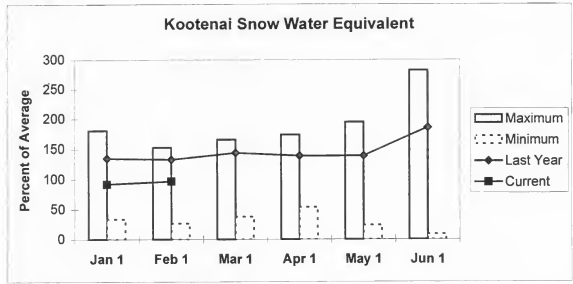
## SWSI

## Basin

|      |   |
|------|---|
| +0.4 | Kootenai River at Ft. Steele (Kootenai in Canada) |
| -0.5 | Tobacco River                                     |
| -0.7 | Kootenai Ft. Steele to Libby Dam                  |
| +0.1 | Kootenai River below Libby Dam                    |
| -0.9 | Fisher River                                      |
| -0.8 | Yaak River  |
| -0.7 | North Fork Flathead River                         |
| -1.4 | Middle FORK Flathead River                        |
| +0.2 | South Fork Flathead River                         |
| -0.6 | Flathead River at Columbia Falls                  |
| -0.1 | Stillwater/Whitefish Rivers                       |
| -0.5 | Swan River  |
| -0.9 | Flathead River at Polson                          |
| -1.9 | Mission Valley                                    |
| +0.3 | Little Bitterroot River                           |
| -1.4 | Clark Fork River above Rock Creek                 |
| -0.6 | Blackfoot River                                   |
| -0.9 | Clark Fork River above Missoula                   |
| -0.5 | Bitterroot River                                  |
| -0.8 | Clark Fork River below Bitterroot River           |
| -0.9 | Clark Fork River below Flathead River             |
| -0.6 | Beaverhead River                                  |
| -1.9 | Ruby River  |
| -0.6 | Big Hole River                                    |
| -1.1 | Boulder River (Jefferson)                         |
| -0.8 | Jefferson River                                   |
| -0.4 | Madison River                                     |
| -1.3 | Gallatin River                                    |
| -0.8 | Missouri River above Canyon Ferry                 |
| -0.8 | Missouri River below Canyon Ferry                 |
| -1.1 | Smith River                                       |
| -0.6 | Sun River   |
| +0.2 | Teton River                                       |
| -1.6 | Birch/Dupuyer Creeks                              |
| +0.5 | Marias River                                      |
| -0.8 | Musselshell River                                 |
| +0.2 | Missouri River above Ft. Peck                     |
| +0.2 | Missouri River below Ft. Peck                     |
| -0.7 | Milk River  |
| -1.7 | Yellowstone River above Livingston                |
| -1.9 | Shields River                                     |
| -1.3 | Boulder River (Yellowstone)                       |
| -0.9 | Stillwater River                                  |
| -1.9 | Rock/Red Lodge Creeks                             |
| -0.8 | Clarks Fork River                                 |
| -1.4 | Yellowstone River above Bighorn River             |
| -0.6 | Bighorn River below Bighorn Lake                  |
| -0.8 | Little Bighorn River                              |
| -1.0 | Yellowstone River below Bighorn River             |
| -0.9 | Tongue River                                      |
| -1.2 | Powder River                                      |

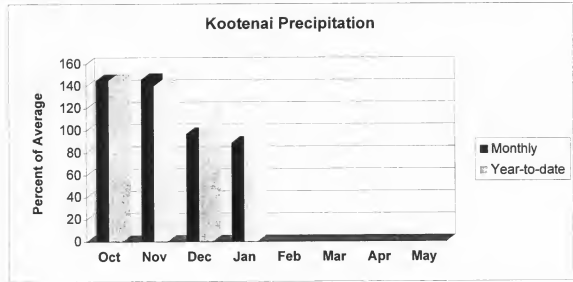
### Kootenai River Basin in Montana

Snowpack conditions in the Kootenai River Basin were near average. Snow water content was 97 percent of average and 70 percent of last year. Snow water content in the Kootenai in Canada was 95 percent of average and 73 percent of last year.



January maximum swe was established in 1997 and minimum was in 1977; February maximum swe was in 1997 and minimum swe was in 1977; March maximum swe was in 1972 and minimum swe was in 1977; April maximum swe was in 1974 and minimum swe was in 1977; May maximum swe was in 1974 and minimum swe was in 1977; and June maximum swe was in 1974 and minimum swe was in 1992. Average is for the period 1961 through 1990.

Mountain precipitation during January was 88 percent of average and 72 percent of last year. Valley precipitation during January was 92 percent of average and 147 percent of last year. Mountain and valley water year precipitation, beginning October 1, 1999, was 107 percent of average and 91 percent of last year.



Lake Koocanusa storage was 105 percent of average and 96 percent of last year.

Surface Water Supply Index (SWSI) was +0.4 in the Kootenai at Ft. Steele (Kootenai in Canada); -0.5 in the Tobacco River; -0.7 in the Kootenai Ft. Steele to Libby Dam; +0.1 in the Kootenai River below Libby Dam; -0.9 in the Fisher River; and -0.8 in the Yaak River.

KOOTENAI RIVER BASIN in Montana  
Streamflow Forecasts - February 1, 2000

| Forecast Point           | Forecast Period | <<----- Drier ----->> |                 | Future Conditions               |          | ----- Wetter ----->> |                 | 30-Yr Avg.<br>(1000AF) |
|--------------------------|-----------------|-----------------------|-----------------|---------------------------------|----------|----------------------|-----------------|------------------------|
|                          |                 | 90%<br>(1000AF)       | 70%<br>(1000AF) | Chance Of Exceeding *           |          | 30%<br>(1000AF)      | 10%<br>(1000AF) |                        |
|                          |                 |                       |                 | 50% (Most Probable)<br>(1000AF) | (% AVG.) |                      |                 |                        |
| TOBACCO RIVER nr Eureka  | APR-JUL         | 87                    | 109             | 125                             | 94       | 141                  | 163             | 133                    |
|                          | APR-SEP         | 93                    | 118             | 135                             | 92       | 152                  | 177             | 147                    |
| LIBBY RES Inflow (1,2)   | APR-JUL         | 4885                  | 5782            | 6190                            | 107      | 6598                 | 7495            | 5779                   |
|                          | APR-SEP         | 5719                  | 6772            | 7250                            | 107      | 7728                 | 8781            | 6772                   |
| FISHER RIVER nr Libby    | APR-JUL         | 120                   | 171             | 205                             | 88       | 239                  | 290             | 234                    |
|                          | APR-SEP         | 131                   | 184             | 220                             | 88       | 256                  | 309             | 250                    |
| YAAK RIVER nr Troy       | APR-JUL         | 288                   | 355             | 400                             | 83       | 445                  | 512             | 483                    |
|                          | APR-SEP         | 306                   | 374             | 420                             | 83       | 466                  | 534             | 505                    |
| KOOTENAI at Leonia (1,2) | APR-JUL         | 6071                  | 7205            | 7720                            | 107      | 8235                 | 9369            | 7199                   |
|                          | APR-SEP         | 6973                  | 8277            | 8870                            | 107      | 9463                 | 10767           | 8275                   |

KOOTENAI RIVER BASIN in Montana  
Reservoir Storage (1000 AF) - End of January

KOOTENAI RIVER BASIN in Montana  
Watershed Snowpack Analysis - February 1, 2000

| Reservoir      | Usable Capacity | *** Usable Storage *** |           |        | Watershed                 | Number of Data Sites | This Year as % of |         |
|----------------|-----------------|------------------------|-----------|--------|---------------------------|----------------------|-------------------|---------|
|                |                 | This Year              | Last Year | Avg    |                           |                      | Last Yr           | Average |
| LAKE KOOCANUSA | 5748.0          | 2494.0                 | 2595.0    | 2381.0 | KOOTENAI in CANADA        | 18                   | 73                | 95      |
|                |                 |                        |           |        | KOOTENAI MAINTSTEM        | 3                    | 67                | 110     |
|                |                 |                        |           |        | TOBACCO                   | 3                    | 73                | 89      |
|                |                 |                        |           |        | FISHER                    | 1                    | 80                | 94      |
|                |                 |                        |           |        | YAAK                      | 5                    | 70                | 92      |
|                |                 |                        |           |        | KOOTENAI in MONTANA       | 12                   | 71                | 97      |
|                |                 |                        |           |        | KOOTENAI ab BONNERS FERRY | 30                   | 72                | 96      |

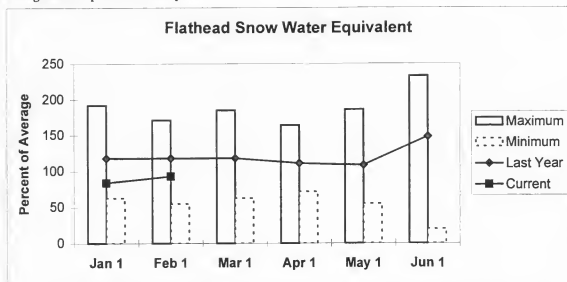
\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.  
(2) - The value is natural volume - actual volume may be affected by upstream water management.

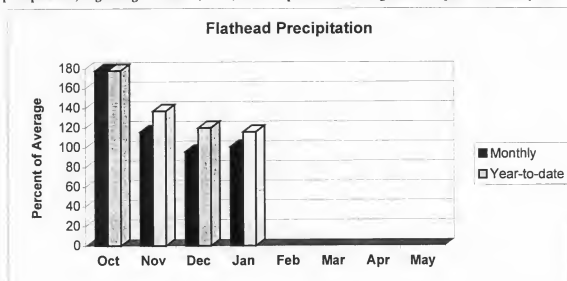
## Flathead River Basin

Snowpack conditions in the Flathead River Basin were near average. Snow water content was 93 percent of average and 79 percent of last year. Snow water content in the North Fork Flathead River in Canada was 84 percent of average and 61 percent of last year.



January maximum swe was established in 1997 and minimum was in 1988; February maximum swe was in 1972 and minimum was in 1977; March maximum swe was in 1972 and minimum was in 1977; April maximum swe was in 1972 and minimum was in 1992; May maximum swe was in 1972 and minimum was in 1992; and June maximum swe was in 1974 and minimum was in 1992. Average is for the period 1961 through 1990.

Mountain precipitation during January was 101 percent of average and 90 percent of last year. Valley precipitation during January was 83 percent of average and 103 percent of last year. Mountain and valley water year precipitation, beginning October 1, 1999, was 116 percent of average and 100 percent of last year.



Combined Camas reservoir storage was 99 percent of average and 84 percent of last year; combined Mission Valley reservoir storage was 74 percent of average and 103 percent of last year; Hungry Horse storage was 114 percent of average and 110 percent of last year; and Flathead Lake storage was 65 percent of average and 103 percent of last year.

Surface Water Supply Index (SWSI) was -0.7 in the North Fork Flathead River; -1.4 in the Middle Fork Flathead River; +0.2 in the South Fork Flathead River; -0.6 in the Flathead River at Columbia Falls; -0.1 in the Stillwater/Whitefish Rivers; -0.5 in the Swan River; -0.9 in the Flathead River at Polson; -1.9 in the Mission Valley; and +0.3 in the Little Bitterroot River.

FLATHEAD RIVER BASIN  
Streamflow Forecasts - February 1, 2000

| Forecast Point                      | Forecast Period | <<----- Drier ----- Future Conditions ----- Wetter ----->> |                 |  |                 |                 |      | 30-Yr Avg.<br>(1000AF) |
|-------------------------------------|-----------------|--|-----------------|--|-----------------|-----------------|------|------------------------|
|                                     |                 | Chance Of Exceeding *                                      |                 |  |                 |                 |      |                        |
|                                     |                 | 90%<br>(1000AF)  | 70%<br>(1000AF) | 50% (Most Probable)<br>(1000AF) (% AVG.) | 30%<br>(1000AF) | 10%<br>(1000AF) |      |                        |
| NF FLATHEAD nr Columbia Falls       | APR-JUL         | 1279   | 1440            | 1550                                     | 93              | 1660            | 1821 | 1662                   |
|                                     | APR-SEP         | 1426   | 1601            | 1720                                     | 94              | 1839            | 2014 | 1836                   |
| MF FLATHEAD nr West Glacier         | APR-JUL         | 1235   | 1387            | 1490                                     | 91              | 1593            | 1745 | 1638                   |
|                                     | APR-SEP         | 1358   | 1520            | 1630                                     | 91              | 1740            | 1902 | 1788                   |
| HUNGRY HORSE Reservoir Inflow (1,2) | APR-JUL         | 1401   | 1751            | 1910                                     | 93              | 2069            | 2419 | 2051                   |
|                                     | APR-SEP         | 1521   | 1878            | 2040                                     | 93              | 2202            | 2559 | 2184                   |
| FLATHEAD at Columbia Falls (2)      | APR-JUL         | 4056   | 4666            | 5080                                     | 93              | 5494            | 6104 | 5482                   |
|                                     | APR-SEP         | 4426   | 5077            | 5520                                     | 93              | 5963            | 6614 | 5960                   |
| STILLWATER nr Whitefish             | APR-JUL         | 107  | 148             | 175                                      | 93              | 202             | 243  | 189                    |
|                                     | APR-SEP         | 122  | 166             | 195                                      | 93              | 224             | 268  | 209                    |
| WHITEFISH nr Kalispell              | APR-JUL         | 70   | 85              | 95                                       | 91              | 105             | 120  | 104                    |
|                                     | APR-SEP         | 76   | 93              | 105                                      | 91              | 117             | 134  | 116                    |
| SWAN RIVER nr Bigfork               | APR-JUL         | 430  | 508             | 560                                      | 96              | 612             | 690  | 583                    |
|                                     | APR-SEP         | 482  | 570             | 630                                      | 95              | 690             | 778  | 665                    |
| FLATHEAD Lake Inflow (1,2)          | APR-JUL         | 4771   | 5616            | 6000                                     | 94              | 6384            | 7229 | 6390                   |
|                                     | APR-SEP         | 5176   | 6093            | 6510                                     | 94              | 6927            | 7844 | 6926                   |

| FLATHEAD RIVER BASIN<br>Reservoir Storage (1000 AF) - End of January |                 |                        |           |        | FLATHEAD RIVER BASIN<br>Watershed Snowpack Analysis - February 1, 2000 |                      |                   |         |
|--|-----------------|------------------------|-----------|--------|--|----------------------|-------------------|---------|
| Reservoir  | Usable Capacity | *** Usable Storage *** |           |        | Watershed  | Number of Data Sites | This Year as % of |         |
|  |                 | This Year              | Last Year | Avg    |  |                      | Last Yr           | Average |
| CANAS (4)  | 45.2            | 19.3                   | 22.9      | 19.4   | NF FLATHEAD in CANADA  | 3                    | 61                | 81      |
| MISSION VALLEY (8)   | 100.0           | 26.8                   | 26.0      | 36.2   | NF FLATHEAD in MONTANA   | 7                    | 72                | 89      |
| HUNGRY HORSE   | 3451.0          | 2695.0                 | 2447.0    | 2362.0 | MIDDLE FORK FLATHEAD   | 5                    | 67                | 88      |
| FLATHEAD LAKE  | 1791.0          | 717.0                  | 694.3     | 1095.0 | SOUTH FORK FLATHEAD  | 6                    | 93                | 100     |
|  |                 |                        |           |        | STILLWATER-WHITEFISH   | 7                    | 80                | 94      |
|  |                 |                        |           |        | SWAN   | 6                    | 89                | 97      |
|  |                 |                        |           |        | MISSION VALLEY   | 3                    | 85                | 86      |
|  |                 |                        |           |        | LITTLE BITTERROOT-ASHLEY   | 4                    | 88                | 100     |
|  |                 |                        |           |        | JOCKO  | 4                    | 77                | 98      |
|  |                 |                        |           |        | FLATHEAD in MONTANA  | 30                   | 79                | 93      |
|  |                 |                        |           |        | FLATHEAD RIVER BASIN   | 33                   | 78                | 92      |

\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

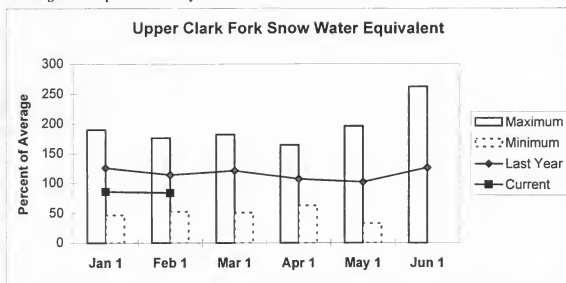
The average is computed for the 1961-1990 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.  
 (2) - The value is natural volume - actual volume may be affected by upstream water management.



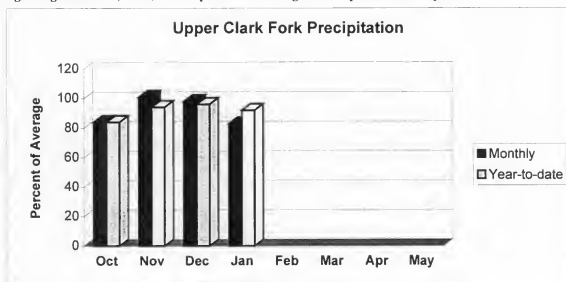
## Upper Clark Fork River Basin

Snowpack conditions in the Upper Clark Fork River Basin were below average. Snow water content was 84 percent of average and 74 percent of last year.



January maximum swe was established in 1997 and minimum swe was in 1977; February maximum was in 1972 and minimum swe was in 1977; March maximum swe was in 1972 and minimum swe was in 1972 and minimum swe was in 1994; May maximum swe was in 1972 and minimum swe was in 1977; and June maximum swe was in 1975 and minimum swe was in 1987. Average is for the period 1961 through 1990.

Mountain precipitation during January was 85 percent of average and 87 percent of last year. Valley precipitation during January was 59 percent of average and 78 percent of last year. Mountain and valley water year precipitation, beginning October 1, 1999, was 92 percent of average and 78 percent of last year.



Georgetown Lake storage was 105 percent of average and 102 percent of last year; Lower Willow Creek storage was 140 percent of average and 95 percent of last year; and Nevada Creek storage was 135 percent of average and 85 percent of last year.

Surface Water Supply Index (SWSI) was -1.4 in the Clark Fork River above Rock Creek; -0.6 in the Blackfoot River; and -0.9 in the Clark Fork River above Missoula.

UPPER CLARK FORK RIVER BASIN  
Streamflow Forecasts - February 1, 2000

| Forecast Point                | Forecast Period | <<----- Drier ----->> |          | Future Conditions               |          | ----- Wetter ----->> |          | 30-Yr Avg.<br>(1000AF) |
|-------------------------------|-----------------|-----------------------|----------|---------------------------------|----------|----------------------|----------|------------------------|
|                               |                 | 90%                   | 70%      | Chance Of Exceeding *           |          | 30%                  | 10%      |                        |
|                               |                 | (1000AF)              | (1000AF) | 50% (Most Probable)<br>(1000AF) | (% AVG.) | (1000AF)             | (1000AF) |                        |
| WARM SPRINGS CK at Anaconda   | APR-JUL         | 14.2                  | 23       | 29                              | 77       | 35                   | 44       | 38                     |
|                               | APR-SEP         | 19.5                  | 30       | 37                              | 78       | 43                   | 54       | 47                     |
| LITTLE BLACKFOOT nr Garrison  | APR-JUL         | 15.6                  | 42       | 60                              | 72       | 77                   | 103      | 83                     |
|                               | APR-SEP         | 19.6                  | 47       | 66                              | 74       | 84                   | 111      | 89                     |
| FLINT CREEK nr Southern Cross | APR-JUL         | 3.9                   | 8.1      | 11.0                            | 78       | 13.9                 | 18.1     | 14.2                   |
|                               | APR-SEP         | 4.0                   | 9.3      | 12.8                            | 77       | 16.3                 | 22       | 16.7                   |
| FLINT CREEK blw Boulder Ck    | APR-JUL         | 16.1                  | 32       | 43                              | 75       | 53                   | 69       | 57                     |
|                               | APR-SEP         | 24                    | 42       | 55                              | 75       | 68                   | 86       | 73                     |
| LOWER WILLOW CK RES Inflow    | APR-JUL         | 2.2                   | 6.7      | 9.7                             | 69       | 12.7                 | 17.2     | 14.0                   |
|                               | APR-SEP         | 2.4                   | 7.0      | 10.1                            | 68       | 13.2                 | 17.8     | 14.8                   |
| MF ROCK CREEK nr Philipsburg  | APR-JUL         | 38                    | 50       | 58                              | 88       | 66                   | 78       | 66                     |
|                               | APR-SEP         | 43                    | 56       | 65                              | 88       | 74                   | 87       | 74                     |
| ROCK CREEK nr Clinton         | APR-JUL         | 112                   | 173      | 215                             | 73       | 257                  | 318      | 296                    |
|                               | APR-SEP         | 133                   | 200      | 245                             | 74       | 290                  | 357      | 333                    |
| NEVADA CREEK nr Finn          | APR-JUL         | 5.3                   | 10.8     | 14.5                            | 76       | 18.2                 | 24       | 19.1                   |
|                               | APR-SEP         | 6.4                   | 12.1     | 16.0                            | 76       | 19.9                 | 26       | 21                     |
| CLEARWATER nr Clearwater      | APR-JUL         | 99                    | 132      | 155                             | 90       | 178                  | 211      | 172                    |
|                               | APR-SEP         | 107                   | 141      | 165                             | 91       | 189                  | 223      | 181                    |
| BLACKFOOT RIVER nr Bonner     | APR-JUL         | 504                   | 662      | 770                             | 92       | 878                  | 1036     | 835                    |
|                               | APR-SEP         | 573                   | 741      | 855                             | 92       | 969                  | 1137     | 926                    |
| CLARK FORK abv Miltown        | APR-JUL         | 213                   | 381      | 495                             | 76       | 609                  | 777      | 652                    |
|                               | APR-SEP         | 256                   | 443      | 570                             | 76       | 697                  | 884      | 755                    |
| CLARK FORK abv Missoula       | APR-JUL         | 877                   | 1105     | 1260                            | 85       | 1415                 | 1643     | 1487                   |
|                               | APR-SEP         | 1003                  | 1251     | 1420                            | 85       | 1589                 | 1837     | 1681                   |

| UPPER CLARK FORK RIVER BASIN<br>Reservoir Storage (1000 AF) - End of January |                 |                        |           |      | UPPER CLARK FORK RIVER BASIN<br>Watershed Snowpack Analysis - February 1, 2000 |                      |                   |         |
|--|-----------------|------------------------|-----------|------|--|----------------------|-------------------|---------|
| Reservoir  | Usable Capacity | *** Usable Storage *** |           |      | Watershed  | Number of Data Sites | This Year as % of |         |
|  |                 | This Year              | Last Year | Avg  |  |                      | Last Yr           | Average |
| GEORGETOWN LAKE  | 31.0            | 28.3                   | 27.8      | 27.0 | CLARK FORK ab FLINT CREEK  | 10                   | 71                | 77      |
| LOWER WILLOW CREEK   | 4.9             | 2.1                    | 2.2       | 1.5  | FLINT CREEK  | 6                    | 66                | 71      |
| NEVADA CREEK   | 12.6            | 5.8                    | 6.8       | 4.3  | ROCK CREEK   | 3                    | 69                | 78      |
|  |                 |                        |           |      | CLARK FORK ab BLACKFOOT  | 16                   | 70                | 78      |
|  |                 |                        |           |      | BLACKFOOT  | 14                   | 78                | 93      |
|  |                 |                        |           |      | UPPER CLARK FORK BASIN   | 28                   | 74                | 84      |

\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

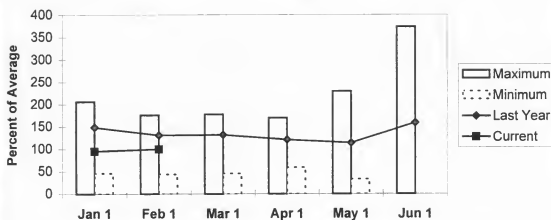
The average is computed for the 1961-1990 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.  
 (2) - The value is natural volume - actual volume may be affected by upstream water management.

## Bitterroot River Basin

Snowpack conditions in the Bitterroot River Basin were near average. Snow water content was 100 percent of average and 76 percent of last year.

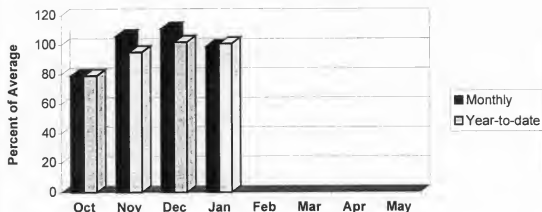
### Bitterroot Snow Water Equivalent



January maximum swe was established in 1997 and minimum swe in 1977; February maximum swe was in 1972 and minimum was in 1977; March maximum swe was in 1972 and minimum swe was in 1977; April maximum swe was in 1972 and minimum swe was in 1977; May maximum swe was in 1972 and minimum swe was in 1987; and June maximum swe was 1972 and 1974 and minimum swe was in 1987 and 1992. Average is for the period 1961 through 1990.

Mountain precipitation during January was 99 percent of average and 101 percent of last year. Valley precipitation during January was 95 percent of average and 158 percent of last year. Mountain and valley water year precipitation, beginning October 1, 1999, was 101 percent of average and 82 percent of last year.

### Bitterroot Precipitation



Painted Rocks Lake storage was 60 percent of average and 107 percent of last year and Como storage was 63 percent of average and 84 percent of last year.

Surface Water Supply Index (SWSI) was -0.5 in the Bitterroot River.

**BITTERROOT RIVER BASIN**  
Streamflow Forecasts - February 1, 2000

| Forecast Point              | Forecast Period | <<----- Drier ----->> |          | Future Conditions               |          | ----- Wetter ----->>> |          | 30-Yr Avg.<br>(1000AF) |
|-----------------------------|-----------------|-----------------------|----------|---------------------------------|----------|-----------------------|----------|------------------------|
|                             |                 | 90%                   | 70%      | Chance Of Exceeding *           |          | 30%                   | 10%      |                        |
|                             |                 | (1000AF)              | (1000AF) | 50% (Most Probable)<br>(1000AF) | (% AVG.) | (1000AF)              | (1000AF) |                        |
| WF BITTERROOT nr Conner (2) | APR-JUL         | 95                    | 125      | 145                             | 95       | 165                   | 195      | 152                    |
|                             | APR-SEP         | 100                   | 133      | 155                             | 93       | 177                   | 210      | 166                    |
| BITTERROOT nr Darby         | APR-JUL         | 321                   | 404      | 460                             | 94       | 516                   | 599      | 491                    |
|                             | APR-SEP         | 362                   | 447      | 505                             | 94       | 563                   | 648      | 540                    |
| COMO RESERVOIR Inflow       | APR-JUL         | 67                    | 75       | 81                              | 103      | 87                    | 95       | 79                     |
|                             | APR-SEP         | 71                    | 79       | 85                              | 102      | 91                    | 99       | 83                     |
| SKALKAGO CK nr Hamilton     | APR-JUL         | 27                    | 35       | 41                              | 89       | 47                    | 56       | 46                     |
|                             | APR-SEP         | 32                    | 42       | 48                              | 91       | 55                    | 64       | 53                     |
| BITTERROOT at Missoula      | APR-JUL         | 940                   | 1095     | 1200                            | 92       | 1305                  | 1460     | 1300                   |
|                             | APR-SEP         | 1026                  | 1189     | 1300                            | 92       | 1411                  | 1574     | 1420                   |

| BITTERROOT RIVER BASIN<br>Reservoir Storage (1000 AF) - End of January |                 |                        |           |      | BITTERROOT RIVER BASIN<br>Watershed Snowpack Analysis - February 1, 2000 |                      |                   |         |
|--|-----------------|------------------------|-----------|------|--|----------------------|-------------------|---------|
| Reservoir  | Usable Capacity | *** Usable Storage *** |           |      | Watershed  | Number of Data Sites | This Year as % of |         |
|  |                 | This Year              | Last Year | Avg  |  |                      | Last Yr           | Average |
| PAINTED ROCKS LAKE   | 31.7            | 7.6                    | 7.1       | 12.7 | WEST FORK BITTERROOT   | 2                    | 76                | 93      |
| COMO   | 34.9            | 6.5                    | 7.4       | 11.1 | EAST SIDE BITTERROOT   | 3                    | 70                | 87      |
|  |                 |                        |           |      | WEST SIDE BITTERROOT   | 3                    | 78                | 107     |
|  |                 |                        |           |      | BITTERROOT RIVER BASIN   | 7                    | 76                | 100     |

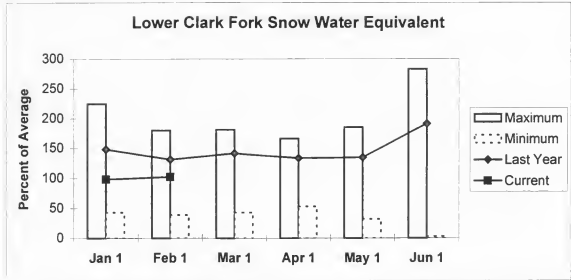
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The average is computed for the 1961-1990 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.  
 (2) - The value is natural volume - actual volume may be affected by upstream water management.

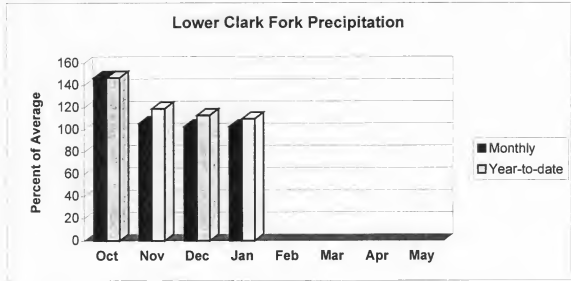
**Lower Clark Fork River Basin**

Snowpack conditions in the Lower Clark Fork River Basin were near average. Snow water content was 102 percent of average and 74 percent of last year.



January maximum swe was established in 1997 and minimum swe was in 1977; February maximum swe was in 1972 and minimum swe was in 1977; March maximum swe was in 1972 and minimum was in 1977; April maximum swe was in 1972 and minimum swe was in 1981; May maximum swe was in 1972 and minimum swe was in 1977; and June maximum swe was in 1974 and minimum swe was in 1977. Average is for the period 1961 through 1990.

Mountain precipitation during January was 106 percent of average and 98 percent of last year. Valley precipitation during January was 94 percent of average and 103 percent of last year. Mountain and valley water year precipitation, beginning October 1, 1999, was 110 percent of average and 89 percent of last year.



Noxon Rapids storage was 103 percent of average and 104 percent of last year.

Surface Water Supply Index (SWSI) was -0.8 in the Clark Fork River below Bitterroot River and -0.9 in the Clark Fork River below Flathead River.

LOWER CLARK FORK RIVER BASIN  
Streamflow Forecasts - February 1, 2000

| Forecast Point                   | Forecast Period | <<----- Drier ----->> |          | Future Conditions     |          | ----- Wetter ----->>> |          | 30-Yr Avg.<br>(1000AF) |
|----------------------------------|-----------------|-----------------------|----------|-----------------------|----------|-----------------------|----------|------------------------|
|                                  |                 | 90%                   | 70%      | Chance Of Exceeding * |          | 30%                   | 10%      |                        |
|                                  |                 | (1000AF)              | (1000AF) | 50% (Most Probable)   | (% AVG.) | (1000AF)              | (1000AF) |                        |
| CLARK FORK abv Missoula          | APR-JUL         | 877                   | 1105     | 1260                  | 85       | 1415                  | 1643     | 1487                   |
|                                  | APR-SEP         | 1003                  | 1251     | 1420                  | 85       | 1589                  | 1837     | 1681                   |
| CLARK FORK blw Missoula          | APR-JUL         | 1861                  | 2212     | 2450                  | 88       | 2689                  | 3040     | 2788                   |
|                                  | APR-SEP         | 2094                  | 2473     | 2730                  | 88       | 2987                  | 3366     | 3099                   |
| CLARK FORK at St. Regis (1)      | APR-JUL         | 1875                  | 2896     | 3360                  | 91       | 3824                  | 4845     | 3686                   |
|                                  | APR-SEP         | 2081                  | 3215     | 3730                  | 91       | 4245                  | 5379     | 4095                   |
| CLARK FORK nr Plains (1,2)       | APR-JUL         | 6471                  | 8533     | 9470                  | 91       | 10407                 | 12469    | 10450                  |
|                                  | APR-SEP         | 7103                  | 9370     | 10400                 | 91       | 11430                 | 13697    | 11470                  |
| THOMPSON nr Thompson Falls       | APR-JUL         | 125                   | 173      | 205                   | 96       | 237                   | 285      | 214                    |
|                                  | APR-SEP         | 146                   | 196      | 230                   | 96       | 264                   | 314      | 240                    |
| PROSPECT CREEK at Thompson Falls | APR-JUL         | 85                    | 106      | 120                   | 98       | 134                   | 155      | 123                    |
|                                  | APR-SEP         | 88                    | 110      | 125                   | 95       | 140                   | 162      | 132                    |
| CLARK FK at Whitehorse Rpd (1,2) | APR-JUL         | 7162                  | 9526     | 10600                 | 90       | 11674                 | 14038    | 11730                  |
|                                  | APR-SEP         | 7917                  | 10519    | 11700                 | 91       | 12881                 | 15483    | 12910                  |

LOWER CLARK FORK RIVER BASIN  
Reservoir Storage (1000 AF) - End of January

LOWER CLARK FORK RIVER BASIN  
Watershed Snowpack Analysis - February 1, 2000

| Reservoir    | Usable   | *** Usable Storage *** |       |       | Watershed              | Number<br>of<br>Data Sites | This Year as % of |         |
|--------------|----------|------------------------|-------|-------|------------------------|----------------------------|-------------------|---------|
|              | Capacity | This                   | Last  | Avg   |                        |                            | Last Yr           | Average |
|              |          | Year                   | Year  |       |                        |                            |                   |         |
| NOXON RAPIDS | 335.0    | 323.6                  | 310.6 | 314.2 | LOWER CLARK FORK BASIN | 8                          | 75                | 102     |

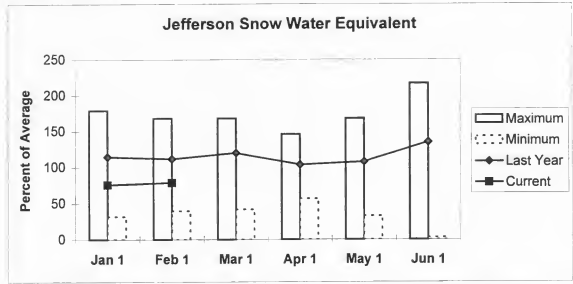
\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.  
(2) - The value is natural volume - actual volume may be affected by upstream water management.

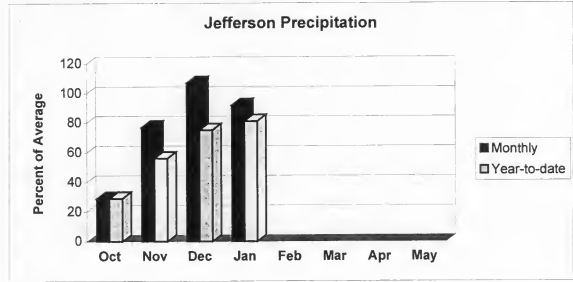
### Jefferson River Basin

Snowpack conditions in the Jefferson River Basin were below average. Snow water content was 79 percent of average and 71 percent of last year.



January maximum swe was established in 1997 and minimum swe was in 1977; February maximum swe was in 1997 and minimum was in 1977; March maximum swe was in 1997 and minimum was in 1977; April maximum swe was in 1972 and minimum was in 1977; May maximum swe was in 1975 and minimum swe was in 1977; and June maximum swe was in 1982 and minimum in 1987. Average is for the period 1961 through 1990.

Mountain precipitation during January was 89 percent of average and 81 percent of last year. Valley precipitation during January was 138 percent of average and 139 percent of last year. Mountain and valley water year precipitation, beginning October 1, 1999, was 81 percent of average and 73 percent of last year.



Lima storage was 133 percent of average and 93 percent of last year; Clark Canyon storage was 108 percent of average and 106 percent of last year; and Ruby River storage was 87 percent of average and 80 percent of last year.

Surface Water Supply Index (SWSI) was -0.6 in the Beaverhead River; -1.9 in the Ruby River; -0.6 in the Big Hole River; -1.1 in the Boulder River; and -0.8 in the Jefferson River as a whole.

JEFFERSON RIVER BASIN  
Streamflow Forecasts - February 1, 2000

| Forecast Point                     | Forecast Period | <<----- Drier ----->> |          | Future Conditions               |          | ----- Wetter ----->> |          | 30-Yr Avg.<br>(1000AF) |
|------------------------------------|-----------------|-----------------------|----------|---------------------------------|----------|----------------------|----------|------------------------|
|                                    |                 | 90%                   | 70%      | Chance Of Exceeding *           |          | 30%                  | 10%      |                        |
|                                    |                 | (1000AF)              | (1000AF) | 50% (Most Probable)<br>(1000AF) | (% AVG.) | (1000AF)             | (1000AF) |                        |
| LIMA RESERVOIR Inflow (2)          | APR-JUL         | 21                    | 46       | 63                              | 65       | 80                   | 105      | 97                     |
|                                    | APR-SEP         | 16.0                  | 46       | 66                              | 63       | 86                   | 116      | 105                    |
| BEAVERHEAD RIVER nr Grant          | APR-JUL         | 29                    | 66       | 91                              | 69       | 116                  | 153      | 132                    |
|                                    | APR-SEP         | 33                    | 76       | 105                             | 68       | 134                  | 177      | 155                    |
| BEAVERHEAD RIVER at Barretts (2)   | APR-JUL         | 29                    | 77       | 110                             | 64       | 143                  | 191      | 172                    |
|                                    | APR-SEP         | 33                    | 91       | 130                             | 64       | 169                  | 227      | 203                    |
| RUBY RIVER Reservoir Inflow        | APR-JUL         | 30                    | 45       | 55                              | 66       | 65                   | 80       | 83                     |
|                                    | APR-SEP         | 36                    | 53       | 65                              | 66       | 77                   | 94       | 99                     |
| BIG HOLE RIVER nr Melrose          | APR-JUL         | 322                   | 461      | 555                             | 87       | 649                  | 788      | 641                    |
|                                    | APR-SEP         | 352                   | 503      | 605                             | 87       | 707                  | 858      | 697                    |
| BOULDER RIVER nr Boulder           | APR-JUL         | 18.8                  | 45       | 63                              | 74       | 80                   | 106      | 85                     |
|                                    | APR-SEP         | 20                    | 48       | 68                              | 74       | 87                   | 115      | 91                     |
| WILLOW CREEK Reservoir Inflow      | APR-JUL         | 0.9                   | 6.8      | 11.7                            | 66       | 16.6                 | 24       | 17.7                   |
|                                    | APR-SEP         | 1.0                   | 7.7      | 13.4                            | 67       | 19.1                 | 28       | 20                     |
| JEFFERSON RIVER nr Three Forks (2) | APR-JUL         | 292                   | 493      | 630                             | 64       | 767                  | 968      | 985                    |
|                                    | APR-SEP         | 312                   | 528      | 675                             | 67       | 822                  | 1038     | 1012                   |

| JEFFERSON RIVER BASIN<br>Reservoir Storage (1000 AF) - End of January |                 |                        |           |       | JEFFERSON RIVER BASIN<br>Watershed Snowpack Analysis - February 1, 2000 |                      |                   |         |
|---|-----------------|------------------------|-----------|-------|---|----------------------|-------------------|---------|
| Reservoir   | Usable Capacity | *** Usable Storage *** |           |       | Watershed   | Number of Data Sites | This Year as % of |         |
|   |                 | This Year              | Last Year | Avg   |   |                      | Last Yr           | Average |
| LIMA  | 84.0            | 44.3                   | 47.6      | 33.4  | BEAVERHEAD  | 8                    | 75                | 87      |
| CLARK CANYON  | 255.6           | 156.5                  | 147.5     | 144.7 | RUBY  | 5                    | 70                | 69      |
| RUBY RIVER  | 38.8            | 20.6                   | 25.6      | 23.8  | BIGHOLE   | 10                   | 75                | 90      |
|   |                 |                        |           |       | BOULDER   | 7                    | 66                | 70      |
|   |                 |                        |           |       | JEFFERSON RIVER BASIN   | 25                   | 71                | 79      |

\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

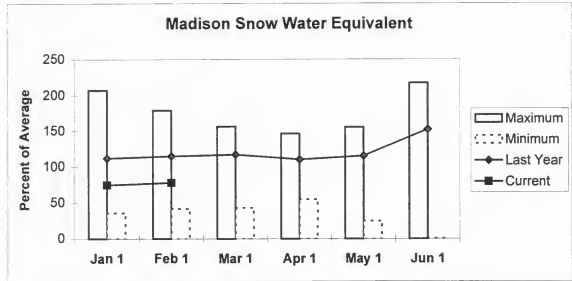
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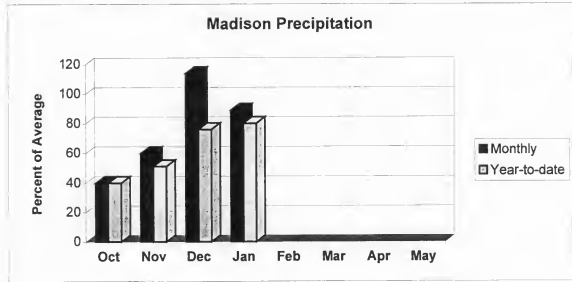
**Madison River Basin**

Snowpack conditions in the Madison River Basin were below average. Snow water content was 78 percent of average and 68 percent of last year.



January maximum swe was established in 1997 and minimum swe was in 1977; February maximum swe was in 1997 and minimum was in 1977; March maximum swe was in 1997 and minimum was in 1977; April maximum swe was in 1997 and minimum was in 1977; May maximum swe was in 1997 and minimum swe was in 1977; and June maximum swe was in 1995 and minimum in 1987. Average is for the period 1961 through 1990.

Mountain and valley precipitation during January was 89 percent of average and 73 percent of last year. Mountain and valley water year precipitation, beginning October 1, 1999, was 80 percent of average and 72 percent of last year.



Ennis Lake storage was 83 percent of average and 99 percent of last year and Hebgen Lake storage was 131 percent of average and 105 percent of last year.

Surface Water Supply Index (SWSI) was -0.4 for the Madison River.

MADISON RIVER BASIN  
Streamflow Forecasts - February 1, 2000

| Forecast Point             | Forecast Period | <<----- Drier ----->> |          | Future Conditions ----->>       |          | Wetter ----->> |          | 30-Yr Avg.<br>(1000AF) |
|----------------------------|-----------------|-----------------------|----------|---------------------------------|----------|----------------|----------|------------------------|
|                            |                 | 90%                   | 70%      | Chance Of Exceeding *           |          | 30%            | 10%      |                        |
|                            |                 | (1000AF)              | (1000AF) | 50% (Most Probable)<br>(1000AF) | (% AVG.) | (1000AF)       | (1000AF) |                        |
| HEBGEN Reservoir Inflow    | APR-JUL         | 249                   | 294      | 325                             | 86       | 356            | 401      | 380                    |
|                            | APR-SEP         | 328                   | 380      | 415                             | 85       | 450            | 502      | 486                    |
| ENNIS Reservoir Inflow (2) | APR-JUL         | 432                   | 508      | 560                             | 85       | 612            | 688      | 662                    |
|                            | APR-SEP         | 545                   | 637      | 700                             | 84       | 763            | 855      | 831                    |

| MADISON RIVER BASIN<br>Reservoir Storage (1000 AF) - End of January |                 |                        |           |       | MADISON RIVER BASIN<br>Watershed Snowpack Analysis - February 1, 2000 |                      |                   |         |
|---|-----------------|------------------------|-----------|-------|---|----------------------|-------------------|---------|
| Reservoir   | Usable Capacity | *** Usable Storage *** |           |       | Watershed   | Number of Data Sites | This Year as % of |         |
|   | Year            | This Year              | Last Year | Avg   |   |                      | Last Yr           | Average |
| ENNIS LAKE  | 41.0            | 28.2                   | 28.5      | 34.0  | MADISON abv HEBGEN LAKE   | 6                    | 58                | 74      |
| HEBGEN LAKE   | 377.5           | 324.2                  | 307.8     | 246.8 | MADISON b/w HEBGEN LAKE   | 8                    | 77                | 81      |
|   |                 |                        |           |       | MADISON RIVER BASIN   | 14                   | 68                | 78      |

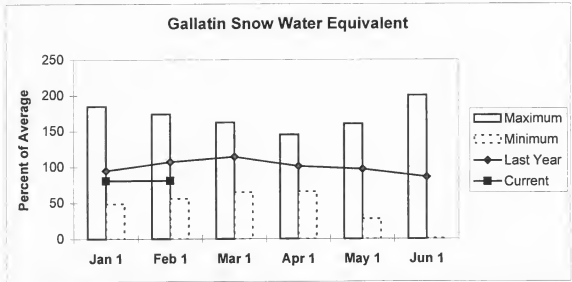
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The average is computed for the 1961-1990 base period.

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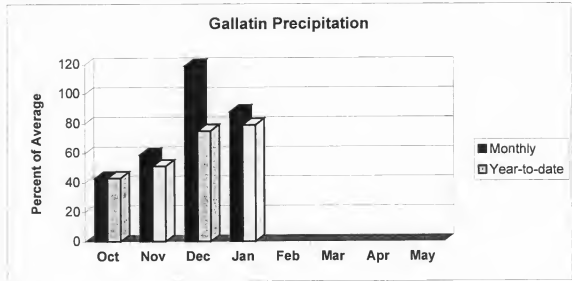
Gallatin River Basin

Snowpack conditions in the Gallatin River Basin were below average. Snow water content was 81 percent of average and 76 percent of last year.



January maximum swe was established in 1997 and minimum swe was in 1966; February maximum swe was in 1997 and minimum was in 1981; March maximum swe was in 1997 and minimum was in 1977 and 1987; April maximum swe was in 1997 and minimum was in 1987; May maximum swe was in 1970 and minimum swe was in 1987; and June maximum swe was in 1975 and minimum in 1987. Average is for the period 1961 through 1990.

Mountain precipitation during January was 89 percent of average and 66 percent of last year. Valley precipitation during January was 81 percent of average and 68 percent of last year. Mountain and valley water year precipitation, beginning October 1, 1999, was 79 percent of average and 79 percent of last year.



Middle Creek storage was 98 percent of average and 92 percent of last year.

Surface Water Supply Index (SWSI) was -1.3 for the Gallatin River.

GALLATIN RIVER BASIN  
Streamflow Forecasts - February 1, 2000

| Forecast Point               | Forecast Period | <<----- Drier ----->> |          | Future Conditions   |          | ----- Wetter ----->> |          | 30-Yr Avg.<br>(1000AF) |
|------------------------------|-----------------|-----------------------|----------|---------------------|----------|----------------------|----------|------------------------|
|                              |                 | 90%                   | 70%      | 50% (Most Probable) |          | 30%                  | 10%      |                        |
|                              |                 | (1000AF)              | (1000AF) | (1000AF)            | (% AVG.) | (1000AF)             | (1000AF) |                        |
| GALLATIN RIVER nr Gateway    | APR-JUL         | 290                   | 347      | 385                 | 88       | 423                  | 480      | 440                    |
|                              | APR-SEP         | 342                   | 406      | 450                 | 87       | 494                  | 558      | 518                    |
| HYALITE RESERVOIR Inflow     | APR-JUL         | 13.7                  | 16.9     | 19.1                | 83       | 21                   | 25       | 23                     |
|                              | APR-SEP         | 15.8                  | 19.2     | 22                  | 83       | 24                   | 27       | 26                     |
| HYALITE CREEK nr Bozeman (2) | APR-JUL         | 20                    | 26       | 30                  | 83       | 34                   | 40       | 36                     |
|                              | APR-SEP         | 25                    | 31       | 35                  | 83       | 39                   | 46       | 42                     |
| GALLATIN RIVER at Logan (2)  | APR-JUL         | 197                   | 315      | 395                 | 79       | 475                  | 593      | 498                    |
|                              | APR-SEP         | 240                   | 371      | 460                 | 79       | 549                  | 680      | 581                    |

| GALLATIN RIVER BASIN<br>Reservoir Storage (1000 AF) - End of January |                 |                        |           |     | GALLATIN RIVER BASIN<br>Watershed Snowpack Analysis - February 1, 2000 |                      |                   |         |
|--|-----------------|------------------------|-----------|-----|--|----------------------|-------------------|---------|
| Reservoir  | Usable Capacity | *** Usable Storage *** |           |     | Watershed  | Number of Data Sites | This Year as % of |         |
|  |                 | This Year              | Last Year | Avg |  |                      | Last Yr           | Average |
| MIDDLE CREEK   | 10.2            | 5.7                    | 6.2       | 5.8 | UPPER GALLATIN   | 4                    | 75                | 88      |
|  |                 |                        |           |     | HYALITE  | 3                    | 81                | 71      |
|  |                 |                        |           |     | BRIDGER  | 2                    | 72                | 83      |
|  |                 |                        |           |     | GALLATIN RIVER BASIN   | 9                    | 76                | 81      |

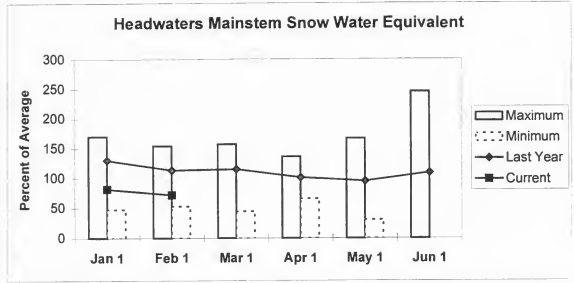
\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.  
 (2) - The value is natural volume - actual volume may be affected by upstream water management.

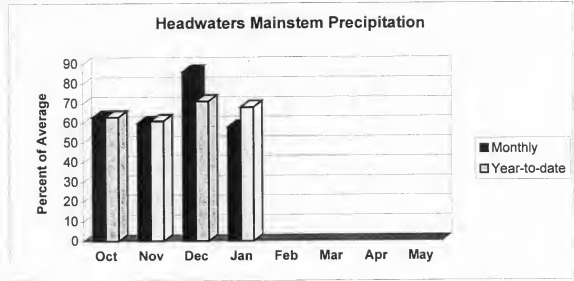
### Missouri Mainstem River Basin

Snowpack conditions in the Headwaters Missouri Mainstem River Basin were below average. Snow water content was 72 percent of average and 67 percent of last year.



January maximum swe was established in 1997 and minimum swe in 1977; February maximum swe was in 1972 and minimum swe was in 1977; March maximum swe in 1972 and minimum swe was in 1977; April maximum swe was in 1972 and minimum swe was in 1961; May maximum swe was in 1975 and minimum swe was in 1977; and June maximum swe was in 1982 and minimum swe was in 1992. Average is for the period 1961 through 1990.

Mountain precipitation during January was 62 percent of average and 66 percent of last year. Valley precipitation during January was 45 percent of average and 49 percent of last year. Mountain and valley water year precipitation, beginning October 1, 1999, was 68 percent of average and 59 percent of last year.



Canyon Ferry Lake storage was 96 percent of average and 93 percent of last year; Helena Valley storage was 94 percent of average and 96 percent of last year; Lake Helena storage was 108 percent of average and the 100 percent of last year; Hauser & Helena storage was 104 percent of average and 100 percent of last year; Holter Lake storage was 111 percent of average and 100 percent of last year; and Fort Peck Lake storage was 101 percent of average and 98 percent of last year.

Surface Water Supply Index (SWSI) was -0.8 in the Missouri River above Canyon Ferry; -0.8 in the Missouri River below Canyon Ferry; +0.2 in the Missouri River above Fort Peck; and +0.2 in the Missouri River below Fort Peck.

MISSOURI MAINSTEM RIVER BASIN  
Streamflow Forecasts - February 1, 2000

| Forecast Point                     | Forecast Period | <<----- Drier ----->>> |          | Future Conditions               |          | ----- Wetter ----->>> |          | 30-Yr Avg.<br>(1000AF) |
|------------------------------------|-----------------|------------------------|----------|---------------------------------|----------|-----------------------|----------|------------------------|
|                                    |                 | 90%                    | 70%      | Chance Of Exceeding *           |          | 30%                   | 10%      |                        |
|                                    |                 | (1000AF)               | (1000AF) | 50% (Most Probable)<br>(1000AF) | (% AVG.) | (1000AF)              | (1000AF) |                        |
| MISSOURI RIVER at Toston (2)       | APR-JUL         | 872                    | 1338     | 1655                            | 80       | 1972                  | 2438     | 2075                   |
|                                    | APR-SEP         | 1106                   | 1597     | 1930                            | 80       | 2263                  | 2754     | 2416                   |
| PRICKLY PEAR CREEK nr Clancy       | APR-JUL         | 7.0                    | 12.1     | 15.5                            | 67       | 18.9                  | 24       | 23                     |
|                                    | APR-SEP         | 7.8                    | 14.0     | 18.2                            | 67       | 22                    | 29       | 27                     |
| GIBSON Reservoir Inflow            | APR-JUL         | 300                    | 380      | 435                             | 91       | 490                   | 570      | 478                    |
|                                    | APR-SEP         | 343                    | 427      | 485                             | 92       | 543                   | 627      | 526                    |
| MISSOURI RIVER at Fort Benton (2)  | APR-JUL         | 1317                   | 1980     | 2430                            | 79       | 2881                  | 3544     | 3087                   |
|                                    | APR-SEP         | 1729                   | 2379     | 2930                            | 80       | 3481                  | 4377     | 3678                   |
| MARIAS RIVER nr Shelby (2)         | APR-JUL         | 197                    | 303      | 375                             | 84       | 447                   | 553      | 447                    |
|                                    | APR-SEP         | 227                    | 336      | 410                             | 84       | 484                   | 593      | 487                    |
| MISSOURI RIVER at Virgelle (2)     | APR-JUL         | 1704                   | 2371     | 2825                            | 79       | 3279                  | 3946     | 3595                   |
|                                    | APR-SEP         | 2109                   | 2906     | 3360                            | 80       | 3814                  | 5356     | 4217                   |
| MISSOURI RIVER nr Landusky (2)     | APR-JUL         | 2142                   | 2724     | 3120                            | 80       | 3516                  | 4098     | 3897                   |
|                                    | APR-SEP         | 2336                   | 3340     | 3710                            | 81       | 4080                  | 5954     | 4580                   |
| MISSOURI RIVER below Fort Peck (2) | APR-JUL         | 1966                   | 2656     | 3125                            | 78       | 3594                  | 4284     | 4015                   |
|                                    | APR-SEP         | 2099                   | 3141     | 3590                            | 80       | 4039                  | 5762     | 4467                   |
| LAKE SAKAJAWEA Inflow (2)          | APR-JUL         | 4731                   | 6582     | 7840                            | 79       | 9098                  | 10949    | 9897                   |
|                                    | APR-SEP         | 5786                   | 7412     | 8940                            | 79       | 10468                 | 13048    | 11346                  |

MISSOURI MAINSTEM RIVER BASIN  
Reservoir Storage (1000 AF) - End of January

MISSOURI MAINSTEM RIVER BASIN  
Watershed Snowpack Analysis - February 1, 2000

| Reservoir            | Usable Capacity | *** Usable Storage *** |           |        |                          | Watershed | Number of Data Sites | This Year as % of |         |
|----------------------|-----------------|------------------------|-----------|--------|--------------------------|-----------|----------------------|-------------------|---------|
|                      |                 | This Year              | Last Year | Avg    |                          |           |                      | Last Yr           | Average |
| CANYON FERRY LAKE    | 2043.0          | 1540.0                 | 1657.0    | 1596.0 | HEADWATERS MAINSTEM      | 8         | 67                   | 72                |         |
| HELENA VALLEY        | 9.2             | 4.4                    | 4.6       | 4.7    | SMITH-JUDITH-MUSSELSHELL | 8         | 75                   | 85                |         |
| LAKE HELENA          | 10.4            | 11.1                   | 11.1      | 10.3   | SUN-TETON-MARIAS         | 7         | 66                   | 88                |         |
| HAUSER & HELENA      | 61.9            | 63.6                   | 63.6      | 61.3   | MAINSTEM ab FT PECK RES  | 22        | 69                   | 83                |         |
| HOLTER LAKE          | 81.9            | 81.2                   | 80.9      | 72.9   | MILK RIVER BASIN         | 10        | 55                   | 67                |         |
| FORT PECK LAKE (MAF) | 18.9            | 15.0                   | 15.3      | 14.9   | MISSOURI MAINSTEM BASIN  | 31        | 68                   | 80                |         |

\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

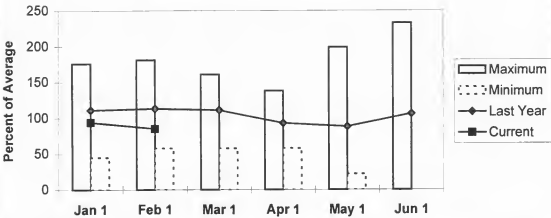
The average is computed for the 1961-1990 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.  
(2) - The value is natural volume - actual volume may be affected by upstream water management.

**Smith-Judith-Musselshell River Basins**

Snowpack conditions in the Smith-Judith-Musselshell River Basins were below average. Snow water content was 85 percent of average and 75 percent of last year. Snow water content in the Smith River Basin was 89 percent of average and 70 percent of last year; in the Judith River Basin was 88 percent of average and 83 percent of last year; and in the Musselshell Basin River was 75 percent of average and 77 percent of last year.

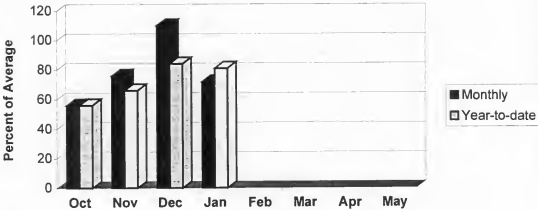
**Smith-Judith-Musselshell Snow Water Equivalent**



January maximum swe was established in 1997 and minimum swe in 1988; February maximum swe was in 1978 and minimum swe was in 1987; March maximum swe was in 1978 and minimum swe was in 1987; April maximum swe was in 1970 and minimum swe was in 1992; and May maximum swe was in 1970 and minimum swe was in 1987; and June maximum swe was in 1982 and minimum swe was in 1992. Average is for the period 1961 through 1990.

Mountain and valley precipitation during January in the Smith-Belts was 83 percent of average and 67 percent of last year; in the Judith was 62 percent of average and 50 percent of last year; and in the Musselshell was 90 percent of average and 53 percent of last year. Mountain and valley water year precipitation, beginning October 1, 1999, was 81 percent of average and 71 percent of last year.

**Smith-Judith-Musselshell Precipitation**



Smith River storage was 73 percent of average and 62 percent of last year; Bair storage was 50 percent of average and 59 percent of last year; Martinsdale storage was 102 percent of average and 90 percent of last year; and Deadman's Basin was 106 percent of average and 85 percent of last year.

Surface Water Supply Index (SWSI) was -1.1 in the Smith River and -0.8 in the Musselshell River.

**SMITH-JUDITH-MUSSELSHELL RIVER BASINS**  
Streamflow Forecasts - February 1, 2000

| Forecast Point                     | Forecast Period | <<----- Drier ----->> |          | Future Conditions               |          | ----- Wetter ----->>> |          | 30-Yr Avg.<br>(1000AF) |
|------------------------------------|-----------------|-----------------------|----------|---------------------------------|----------|-----------------------|----------|------------------------|
|                                    |                 | 90%                   | 70%      | Chance Of Exceeding *           |          | 30%                   | 10%      |                        |
|                                    |                 | (1000AF)              | (1000AF) | 50% (Most Probable)<br>(1000AF) | (% AVG.) | (1000AF)              | (1000AF) |                        |
| SHEEP CREEK nr White Sulphur Spgs. | APR-JUL         | 13.1                  | 16.0     | 18.0                            | 99       | 20                    | 23       | 18.1                   |
|                                    | APR-SEP         | 15.5                  | 18.8     | 21                              | 100      | 23                    | 27       | 21                     |
| SMITH RIVER abv Eagle Creek        | APR-JUL         | 110                   | 143      | 165                             | 94       | 187                   | 220      | 175                    |
|                                    | APR-SEP         | 133                   | 173      | 200                             | 95       | 227                   | 267      | 210                    |
| NF MUSSELSHELL nr Delpine          | APR-JUL         | 2.43                  | 3.87     | 4.85                            | 101      | 5.83                  | 7.27     | 4.80                   |
|                                    | APR-SEP         | 2.92                  | 4.58     | 5.70                            | 102      | 6.82                  | 8.48     | 5.60                   |
| SF MUSSELSHELL abv Martinsdale     | APR-JUL         | 0.1                   | 21       | 36                              | 68       | 50                    | 71       | 52                     |
|                                    | APR-SEP         | 1.0                   | 23       | 39                              | 69       | 54                    | 76       | 56                     |
| MUSSELSHELL at Harlowton (2)       | APR-JUL         | 24                    | 46       | 61                              | 76       | 75                    | 97       | 80                     |
|                                    | APR-SEP         | 25                    | 48       | 63                              | 76       | 78                    | 101      | 83                     |
| MUSSELSHELL nr Roundup (2)         | APR-JUL         | 21                    | 50       | 69                              | 66       | 88                    | 117      | 104                    |
|                                    | APR-SEP         | 22                    | 51       | 70                              | 67       | 89                    | 118      | 105                    |

| SMITH-JUDITH-MUSSELSHELL RIVER BASINS<br>Reservoir Storage (1000 AF) - End of January |                 |                        |           |      | SMITH-JUDITH-MUSSELSHELL RIVER BASINS<br>Watershed Snowpack Analysis - February 1, 2000 |                      |                   |         |
|---|-----------------|------------------------|-----------|------|---|----------------------|-------------------|---------|
| Reservoir   | Usable Capacity | *** Usable Storage *** |           |      | Watershed   | Number of Data Sites | This Year as % of |         |
|   |                 | This Year              | Last Year | Avg  |   |                      | Last Yr           | Average |
| SMITH RIVER   | 10.6            | 4.6                    | 7.4       | 6.3  | SMITH   | 4                    | 70                | 89      |
| NEULAN CREEK  |                 | NO REPORT              |           |      | JUDITH  | 4                    | 83                | 88      |
| BAIR  | 7.0             | 1.9                    | 3.2       | 3.8  | MUSSELSHELL   | 3                    | 77                | 75      |
| MARTINSDALE   | 23.1            | 9.4                    | 10.4      | 9.2  | SMITH-JUDITH-MUSSELSHELL  | 8                    | 75                | 85      |
| DEADMAN'S BASIN   | 72.2            | 45.7                   | 53.5      | 43.0 |   |                      |                   |         |

\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.

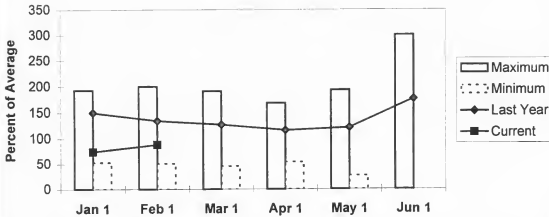
(2) - The value is natural volume - actual volume may be affected by upstream water management.



### Sun-Teton-Marias River Basins

Snowpack conditions in the Sun-Teton-Marias River Basins were below average. Snow water content was 88 percent of average and 66 percent of last year. Snow water content in the Sun River Basin was 89 percent of average and 68 percent of last year; in the Teton River Basin was 85 percent of average and 64 percent of last year; and in the Marias River Basin was 86 percent of average and 64 percent of last year.

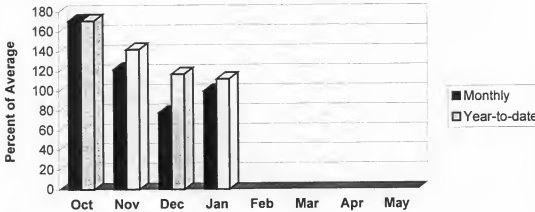
Sun-Teton-Marias Snow Water Equivalent



January maximum swe was established in 1997 and minimum swe was in 1988; February maximum swe was in 1972 and minimum swe was in 1977; March maximum swe was in 1972 and minimum swe was in 1984; April maximum swe was in 1972 and minimum swe was in 1984; May maximum swe was in 1972 and minimum swe was in 1977; and June maximum was in 1982 and minimum swe was in 1992. Average is for the period 1961 through 1990.

Mountain and valley precipitation during January in the Sun was 88 percent of average and 135 percent of last year; in the Teton was 110 percent of average and 119 percent of last year; and in the Marias was 98 percent of average and 93 percent of last year. Mountain and valley water year precipitation, beginning October 1, 1999, was 112 percent of average and 95 percent of last year.

Sun-Teton-Marias Precipitation



Gibson storage was 98 percent of average and 125 percent of last year; Pishkun storage was 109 percent of average and 98 percent of last year; Willow Creek storage was 24 percent of average and 18 percent of last year; Lower Two Medicine Lake storage was 178 percent of average; Four Horns Lake storage was 105 percent of average and 140 percent of last year; Swift storage was 80 percent of average and 79 percent of last year; Lake Frances storage was 36 percent of average and 53 percent of last year; and Lake Elwell (Tiber) storage was 134 percent of average and 110 percent of last year.

Surface Water Supply Index (SWSI) was -0.6 in the Sun River; +0.1 in the Teton River; -1.6 in the Birch/Dupuyer Creeks; and +0.5 in the Marias River.

SUN-TETON-MARIAS RIVER BASINS  
Streamflow Forecasts - February 1, 2000

| Forecast Point                 | Forecast Period | <<----- Drier ----->> |                 | Future Conditions               |          | ----- Wetter ----->> |                 | 30-Yr Avg.<br>(1000AF) |
|--------------------------------|-----------------|-----------------------|-----------------|---------------------------------|----------|----------------------|-----------------|------------------------|
|                                |                 | 90%<br>(1000AF)       | 70%<br>(1000AF) | Chance Of Exceeding *           |          | 30%<br>(1000AF)      | 10%<br>(1000AF) |                        |
|                                |                 |                       |                 | 50% (Most Probable)<br>(1000AF) | (% AVG.) |                      |                 |                        |
| GIBSON Reservoir Inflow        | APR-JUL         | 300                   | 380             | 435                             | 91       | 490                  | 570             | 478                    |
|                                | APR-SEP         | 343                   | 427             | 485                             | 92       | 543                  | 627             | 526                    |
| TWO MEDICINE RIVER nr Browning | APR-JUL         | 112                   | 157             | 188                             | 87       | 219                  | 264             | 215                    |
|                                | APR-SEP         | 123                   | 169             | 200                             | 88       | 231                  | 277             | 228                    |
| BADGER CREEK nr Browning (2)   | APR-JUL         | 58                    | 79              | 94                              | 90       | 109                  | 130             | 104                    |
|                                | APR-SEP         | 69                    | 92              | 108                             | 90       | 124                  | 147             | 120                    |
| SWIFT RESERVOIR Inflow         | APR-JUL         | 31                    | 48              | 60                              | 88       | 72                   | 89              | 68                     |
|                                | APR-SEP         | 40                    | 58              | 70                              | 88       | 82                   | 100             | 80                     |
| DUPUYER CREEK nr Valier        | APR-JUL         | 0.6                   | 6.8             | 13.3                            | 86       | 19.8                 | 29              | 15.5                   |
|                                | APR-SEP         | 0.8                   | 8.0             | 14.9                            | 86       | 22                   | 32              | 17.4                   |
| CUT BANK CREEK at Cut Bank     | APR-JUL         | 47                    | 64              | 75                              | 86       | 86                   | 103             | 87                     |
|                                | APR-SEP         | 53                    | 71              | 83                              | 87       | 95                   | 113             | 96                     |
| MARIAS RIVER nr Shelby (2)     | APR-JUL         | 197                   | 303             | 375                             | 84       | 447                  | 553             | 447                    |
|                                | APR-SEP         | 227                   | 336             | 410                             | 84       | 484                  | 593             | 487                    |

SUN-TETON-MARIAS RIVER BASINS  
Reservoir Storage (1000 AF) - End of January

SUN-TETON-MARIAS RIVER BASINS  
Watershed Snowpack Analysis - February 1, 2000

| Reservoir               | Usable Capacity   *** Usable Storage *** |           |           |       | Watershed        | Number of Data Sites | This Year as % of |         |
|-------------------------|--|-----------|-----------|-------|------------------|----------------------|-------------------|---------|
|                         | Usable Capacity                          | This Year | Last Year | Avg   |                  |                      | Last Yr           | Average |
| GIBSON                  | 99.1                                     | 43.5      | 34.8      | 44.2  | SUN              | 2                    | 68                | 89      |
| FISHKUN                 | 32.0                                     | 19.3      | 19.7      | 17.7  | TETON            | 3                    | 64                | 85      |
| WILLOW CREEK            | 32.2                                     | 5.0       | 28.0      | 21.2  | MARIAS           | 4                    | 64                | 86      |
| LOWER TWO MEDICINE LAKE | 11.9                                     | 11.9      | 0.0       | 6.7   | SUN-TETON-MARIAS | 7                    | 66                | 88      |
| FOUR HORNS LAKE         | 19.2                                     | 13.0      | 9.3       | 12.4  |                  |                      |                   |         |
| SWIFT                   | 30.0                                     | 12.3      | 15.6      | 15.3  |                  |                      |                   |         |
| LAKE FRANCES            | 112.0                                    | 25.2      | 47.5      | 69.6  |                  |                      |                   |         |
| LAKE ELWELL (TIGER)     | 1347.0                                   | 783.4     | 711.5     | 583.0 |                  |                      |                   |         |

\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

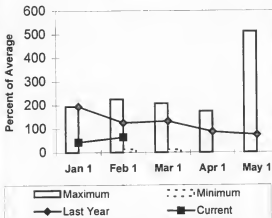
The average is computed for the 1961-1990 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.  
 (2) - The value is natural volume - actual volume may be affected by upstream water management.

# **St. Mary and Milk River Basins**

Snowpack conditions in the St. Mary and Milk River Basins were below average. Snow water content in the Saint Mary River Basin was 85 percent of average and 65 percent of last year. Snow water content in the Bearpaw Mountains was 64 percent of average and 61 percent of last year. Snow water content for the Cypress Hills in Canada was 70 percent of average and 51 percent of last year.

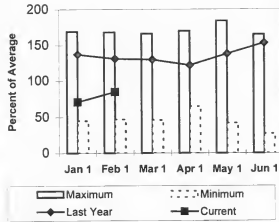
**Bearpaw Mountains Snow Water Equivalent**



Bearpaw - January maximum swe was established in 1978 and minimum swe was in 1981; February maximum swe was 1978 and minimum was in 1973; March maximum swe was 1978 and minimum swe was 1981; April maximum swe was in 1975 and minimum swe was in 1983; May maximum swe was 1975 and the minimum has occurred in several years. Average is for the period 1961 through 1990.

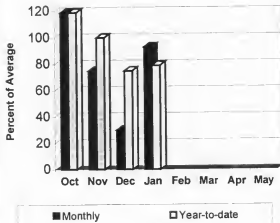
St. Mary - January maximum swe was established in 1997 and minimum swe was in 1988; February maximum swe was in 1972 and minimum swe was in 1977; March maximum swe was in 1972 and minimum swe was in 1977; April maximum swe was in 1972 and minimum swe was in 1992; May maximum swe was in 19972 and minimum swe was in 1977; and June maximum swe was in 1991 and minimum swe was 1992. Average is for the period 1961 through 1990.

**St. Mary Snow Water Equivalent**

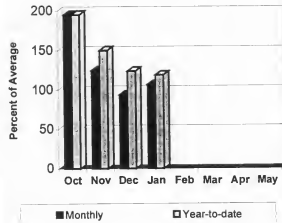


Mountain and valley precipitation in the St. Mary River Basin during January was 107 percent of average and 96 percent of last year; and in the Milk River Basin during January was 93 percent of average and 82 percent of last year. Mountain and valley water year precipitation, beginning October 1, 1999, was 105 percent of average and 81 percent of last year.

**Milk Precipitation**



**St. Mary Precipitation**



Lake Sherburne storage was 91 percent of average and 176 percent of last year; Fresno storage was 79 percent of average and 90 percent of last year; Beaver Creek storage was 156 percent of average and 108 percent of last year; and Nelson storage was 107 percent of average and 108 percent of last year.

Surface Water Supply Index (SWSI) was -0.7 for the Milk River.

ST. MARY and MILK RIVER BASINS  
Streamflow Forecasts - February 1, 2000

| Forecast Point                      | Forecast Period | <<----- Drier ----->> |          | Future Conditions               |          | ----- Wetter ----->> |          | 30-Yr Avg.<br>(1000AF) |
|-------------------------------------|-----------------|-----------------------|----------|---------------------------------|----------|----------------------|----------|------------------------|
|                                     |                 | 90%                   | 70%      | Chance Of Exceeding *           |          | 30%                  | 10%      |                        |
|                                     |                 | (1000AF)              | (1000AF) | 50% (Most Probable)<br>(1000AF) | (% AVG.) | (1000AF)             | (1000AF) |                        |
| LAKE SHERBURNE Inflow               | APR-JUL         | 75                    | 84       | 90                              | 84       | 96                   | 105      | 107                    |
|                                     | APR-SEP         | 91                    | 99       | 105                             | 84       | 111                  | 119      | 125                    |
| ST. MARY RIVER nr Babb (2)          | APR-JUL         | 255                   | 291      | 315                             | 80       | 339                  | 375      | 395                    |
|                                     | APR-SEP         | 305                   | 344      | 370                             | 80       | 396                  | 435      | 463                    |
| ST. MARY RIVER at US/CAN Border (2) | APR-JUL         | 274                   | 325      | 360                             | 78       | 395                  | 446      | 462                    |
|                                     | APR-SEP         | 339                   | 393      | 430                             | 80       | 467                  | 521      | 539                    |
| MILK RIVER at Western Crossing (3)  | MAR-JUL         | 6.7                   | 9.9      | 21                              | 50       | 31                   | 34       | 42                     |
|                                     | MAR-SEP         | 8.3                   | 10.8     | 22                              | 48       | 33                   | 37       | 46                     |
| MILK RIVER @ Milk River, AB (2,3)   | MAR-JUL         | 16.7                  | 23       | 40                              | 61       | 56                   | 59       | 64                     |
|                                     | MAR-SEP         | 20                    | 25       | 43                              | 61       | 60                   | 62       | 69                     |
| MILK RIVER at East Cross. (2,3)     | MAR-JUL         | 17.9                  | 32       | 49                              | 58       | 67                   | 73       | 85                     |
|                                     | MAR-SEP         | 24                    | 36       | 53                              | 57       | 71                   | 79       | 93                     |
| BEAVER CREEK near Havre             | MAR-JUL         | 0.5                   | 3.5      | 7.2                             | 70       | 10.9                 | 16.3     | 10.3                   |

| ST. MARY and MILK RIVER BASINS               |                 |                        |           |      | ST. MARY and MILK RIVER BASINS                 |                      |                   |         |
|--|-----------------|------------------------|-----------|------|--|----------------------|-------------------|---------|
| Reservoir Storage (1000 AF) - End of January |                 |                        |           |      | Watershed Snowpack Analysis - February 1, 2000 |                      |                   |         |
| Reservoir                                    | Usable Capacity | *** Usable Storage *** |           |      | Watershed                                      | Number of Data Sites | This Year as % of |         |
|  |                 | This Year              | Last Year | Avg  |  |                      | Last Yr           | Average |
| LAKE SHERBURNE                               | 64.3            | 21.8                   | 12.4      | 24.0 | ST. MARY                                       | 2                    | 65                | 85      |
| FRESNO                                       | 127.0           | 40.3                   | 45.0      | 51.2 | BEARPAW MOUNTAINS                              | 4                    | 61                | 64      |
| BEAVER CREEK                                 | 3.5             | 2.8                    | 2.6       | 1.8  | CYPRESS HILLS, CANADA                          | 6                    | 51                | 70      |
| NELSON                                       | 66.8            | 39.1                   | 36.1      | 36.4 | MILK RIVER BASIN                               | 9                    | 56                | 70      |
|  |                 |                        |           |      | ST. MARY & MILK BASINS                         | 12                   | 61                | 78      |

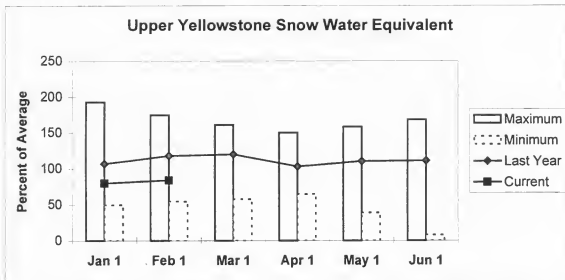
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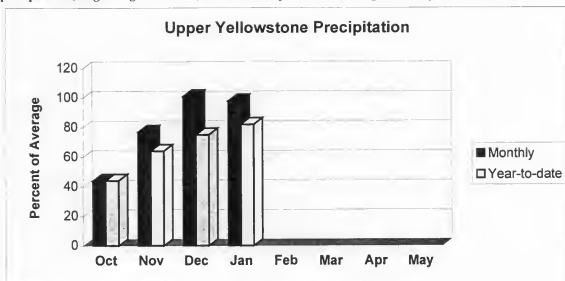
## Upper Yellowstone River Basin

Snowpack conditions in the Upper Yellowstone River Basin were below average. Snow water content was 84 percent of average and 71 percent of last year.



January maximum swe was established in 1997 and minimum swe was in 1988; February maximum swe was in 1997 and minimum swe was in 1977; March maximum swe was in 1997 and minimum swe was in 1977; April maximum swe was in 1971 and minimum swe was in 1981; May maximum swe was in 1997 and minimum swe was in 1987; and June maximum swe was 1982 and minimum swe was in 1987 and 1994. Average is for the period 1961 through 1990.

Mountain precipitation during January was 98 percent of average and 70 percent of last year. Valley precipitation during January was 105 percent of average and 93 percent of last year. Mountain and valley water year precipitation, beginning October 1, 1999, was 82 percent of average and 71 percent of last year.



Mystic Lake storage was 75 percent of average and 100 percent of last year and Cooney storage was 117 percent of average and 101 percent of last year.

Surface Water Supply Index (SWSI) was -1.7 in the Yellowstone River above Livingston; -1.9 in the Shields River; -1.3 in the Boulder River; -0.9 in the Stillwater River; -1.9 in the Rock/Red lodge Creeks; -0.8 in the Clarks Fork River; and -1.4 in the Yellowstone River above Bighorn River.

UPPER YELLOWSTONE RIVER BASIN  
Streamflow Forecasts - February 1, 2000

| Forecast Point                    | Forecast Period | <<----- Drier ----->> |          | Future Conditions               |          | ----- Wetter ----->> |          | 30-Yr Avg.<br>(1000AF) |
|-----------------------------------|-----------------|-----------------------|----------|---------------------------------|----------|----------------------|----------|------------------------|
|                                   |                 | 90%                   | 70%      | Chance Of Exceeding *           |          | 30%                  | 10%      |                        |
|                                   |                 | (1000AF)              | (1000AF) | 50% (Most Probable)<br>(1000AF) | (% AVG.) | (1000AF)             | (1000AF) |                        |
| YELLOWSTONE at Lake Outlet        | APR-JUL         | 307                   | 377      | 425                             | 74       | 473                  | 543      | 573                    |
|                                   | APR-SEP         | 420                   | 512      | 575                             | 73       | 638                  | 730      | 792                    |
| YELLOWSTONE RIVER at Corwin Spgs. | APR-JUL         | 984                   | 1142     | 1250                            | 78       | 1358                 | 1516     | 1609                   |
|                                   | APR-SEP         | 1166                  | 1350     | 1475                            | 76       | 1600                 | 1784     | 1937                   |
| YELLOWSTONE RIVER near Livingston | APR-JUL         | 1175                  | 1327     | 1430                            | 77       | 1533                 | 1685     | 1855                   |
|                                   | APR-SEP         | 1397                  | 1578     | 1700                            | 76       | 1822                 | 2003     | 2241                   |
| SHIELDS RIVER nr Livingston       | APR-JUL         | 28                    | 74       | 105                             | 65       | 136                  | 182      | 162                    |
|                                   | APR-SEP         | 27                    | 80       | 115                             | 64       | 150                  | 203      | 179                    |
| BOULDER RIVER at Big Timber       | APR-JUL         | 199                   | 244      | 275                             | 82       | 306                  | 351      | 335                    |
|                                   | APR-SEP         | 214                   | 262      | 295                             | 81       | 328                  | 376      | 364                    |
| MYSTIC LAKE Reservoir Inflow (2)  | APR-JUL         | 45                    | 51       | 55                              | 90       | 59                   | 66       | 61                     |
|                                   | APR-SEP         | 58                    | 65       | 70                              | 89       | 75                   | 82       | 79                     |
| STILLWATER RIVER nr Absarokee (2) | APR-JUL         | 328                   | 392      | 435                             | 87       | 478                  | 542      | 498                    |
|                                   | APR-SEP         | 399                   | 468      | 515                             | 87       | 562                  | 631      | 593                    |
| CLARK'S FORK RIVER nr Belfry      | APR-JUL         | 392                   | 451      | 490                             | 92       | 529                  | 588      | 532                    |
|                                   | APR-SEP         | 435                   | 495      | 535                             | 91       | 575                  | 635      | 590                    |
| COONEY RESERVOIR Inflow (2)       | APR-JUL         | 7.2                   | 24       | 35                              | 75       | 46                   | 63       | 47                     |
|                                   | APR-SEP         | 14.8                  | 32       | 43                              | 75       | 54                   | 71       | 57                     |
| YELLOWSTONE RIVER at Billings (2) | APR-JUL         | 2013                  | 2499     | 2830                            | 79       | 3161                 | 3647     | 3577                   |
|                                   | APR-SEP         | 2863                  | 3154     | 3510                            | 83       | 3866                 | 4169     | 4211                   |

| UPPER YELLOWSTONE RIVER BASIN<br>Reservoir Storage (1000 AF) - End of January |                 |                        |           |      | UPPER YELLOWSTONE RIVER BASIN<br>Watershed Snowpack Analysis - February 1, 2000 |                           |                      |                   |         |
|---|-----------------|------------------------|-----------|------|---|---------------------------|----------------------|-------------------|---------|
| Reservoir   | Usable Capacity | *** Usable Storage *** |           |      |   | Watershed                 | Number of Data Sites | This Year as % of |         |
|   |                 | This Year              | Last Year | Avg  |   |                           |                      | Last Yr           | Average |
| MYSTIC LAKE   | 21.0            | 6.4                    | 6.4       | 8.5  |   | YELLOWSTONE ab LIVINGSTON | 14                   | 70                | 84      |
| COONEY  | 27.4            | 17.1                   | 17.0      | 14.6 |   | SHIELDS                   | 4                    | 70                | 77      |
|   |                 |                        |           |      |   | BOULDER-STILLWATER        | 3                    | 81                | 90      |
|   |                 |                        |           |      |   | CLARK'S FORK-ROCK CREEK   | 8                    | 75                | 87      |
|   |                 |                        |           |      |   | UPPER YELLOWSTONE BASIN   | 25                   | 71                | 84      |

\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

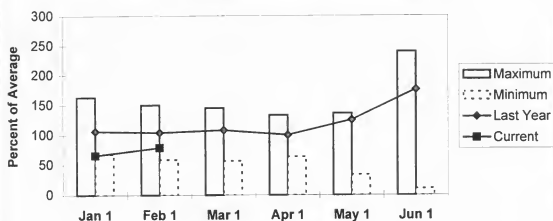
The average is computed for the 1961-1990 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.  
 (2) - The value is natural volume - actual volume may be affected by upstream water management.

## Lower Yellowstone River Basin

Snowpack conditions in the Lower Yellowstone River Basin, in Wyoming, were below average. Snow water content was 79 percent of average and 75 percent of last year. Several snowpack monitoring stations were tied or set new record lows in the Wind and Bighorn River Basins.

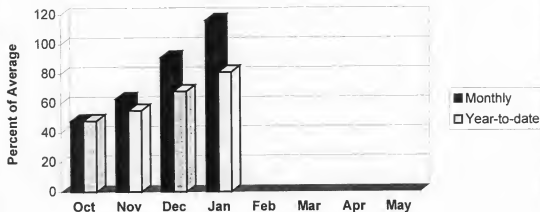
Lower Yellowstone Snow Water Equivalent



January maximum swe was established in 1997 and minimum swe was in 1981; February maximum swe was in 1997 and minimum swe was in 1981; March maximum swe was in 1986 and minimum swe was in 1977; April maximum swe was in 1986 and minimum swe was in 1981; May maximum swe was in 1997 and minimum swe was in 1981; and June maximum swe was in 1995 and minimum swe was in 1994. Average is for the period 1961 through 1990.

Mountain and valley precipitation during January was 122 percent of average and 94 percent of last year. Mountain and valley water year precipitation, beginning October 1, 1999, was 83 percent of average and 68 percent of last year.

Lower Yellowstone Precipitation



Bighorn Lake storage was 112 percent of average and 109 percent of last year and Tongue River storage was 135 percent of average and 590 percent of last year.

Surface Water Supply Index (SWSI) was -0.6 in the Bighorn River below Bighorn Lake; -0.8 in the Little Bighorn River; -1.0 in the Yellowstone River below Bighorn River; -0.9 in the Tongue River; and -1.2 in the Powder River.

LOWER YELLOWSTONE RIVER BASIN  
Streamflow Forecasts - February 1, 2000

| Forecast Point                      | Forecast Period | <<----- Drier ----->> |          | Future Conditions   |          | ----- Wetter ----->> |          | 30-Yr Avg.<br>(1000AF) |
|-------------------------------------|-----------------|-----------------------|----------|---------------------|----------|----------------------|----------|------------------------|
|                                     |                 | 90%                   | 70%      | 50% (Most Probable) |          | 30%                  | 10%      |                        |
|                                     |                 | (1000AF)              | (1000AF) | (1000AF)            | (% AVG.) | (1000AF)             | (1000AF) |                        |
| YELLOWSTONE RIVER at Billings (2)   | APR-JUL         | 2013                  | 2499     | 2830                | 79       | 3161                 | 3647     | 3577                   |
|                                     | APR-SEP         | 2863                  | 3154     | 3510                | 83       | 3866                 | 4169     | 4211                   |
| BIGHORN RIVER nr St. Xavier (2)     | APR-JUL         | 426                   | 798      | 1050                | 64       | 1302                 | 1674     | 1645                   |
|                                     | APR-SEP         | 628                   | 924      | 1190                | 66       | 1456                 | 1704     | 1794                   |
| LITTLE BIGHORN RIVER nr Hardin      | APR-JUL         | 54                    | 84       | 105                 | 75       | 126                  | 156      | 140                    |
|                                     | APR-SEP         | 64                    | 97       | 120                 | 76       | 143                  | 176      | 157                    |
| TONGUE RIVER RESERVOIR Inflow (2)   | APR-JUL         | 90                    | 143      | 180                 | 78       | 217                  | 270      | 230                    |
|                                     | APR-SEP         | 111                   | 167      | 205                 | 80       | 243                  | 299      | 256                    |
| YELLOWSTONE RIVER at Miles City (2) | APR-JUL         | 2541                  | 3529     | 4200                | 77       | 4871                 | 5859     | 5431                   |
|                                     | APR-SEP         | 3455                  | 4085     | 4850                | 77       | 5615                 | 6218     | 6281                   |
| POWDER RIVER at Moorehead           | APR-JUL         | 28                    | 89       | 130                 | 62       | 171                  | 232      | 211                    |
|                                     | APR-SEP         | 42                    | 103      | 145                 | 63       | 187                  | 248      | 232                    |
| POWDER RIVER near Locate            | APR-JUL         | 68                    | 117      | 150                 | 60       | 183                  | 232      | 252                    |
|                                     | APR-SEP         | 62                    | 123      | 165                 | 60       | 207                  | 268      | 276                    |
| YELLOWSTONE RIVER nr Sidney (2)     | APR-JUL         | 2695                  | 3770     | 4500                | 76       | 5230                 | 6305     | 5925                   |
|                                     | APR-SEP         | 3475                  | 4322     | 5170                | 76       | 6018                 | 6814     | 6814                   |

| LOWER YELLOWSTONE RIVER BASIN<br>Reservoir Storage (1000 AF) - End of January |                 |                        |           |       | LOWER YELLOWSTONE RIVER BASIN<br>Watershed Snowpack Analysis - February 1, 2000 |                      |                   |         |
|---|-----------------|------------------------|-----------|-------|---|----------------------|-------------------|---------|
| Reservoir   | Usable Capacity | *** Usable Storage *** |           |       | Watershed   | Number of Data Sites | This Year as % of |         |
|   |                 | This Year              | Last Year | Avg   |   |                      | Last Yr           | Average |
| BIGHORN LAKE  | 1356.0          | 941.9                  | 864.1     | 839.2 | WIND RIVER (Wyoming)  | 19                   | 64                | 68      |
| TONGUE RIVER  | 68.0            | 36.6                   | 6.2       | 27.1  | SHOSHONE RIVER (Wyoming)  | 7                    | 62                | 81      |
|   |                 |                        |           |       | BIGHORN RIVER (Wyoming)   | 21                   | 72                | 82      |
|   |                 |                        |           |       | LITTLE BIGHORN (Wyoming)  | 3                    | 110               | 99      |
|   |                 |                        |           |       | TONGUE RIVER (Wyoming)  | 9                    | 107               | 93      |
|   |                 |                        |           |       | POWDER RIVER (Wyoming)  | 9                    | 91                | 78      |
|   |                 |                        |           |       | LOWER YELLOWSTONE BASIN (   | 47                   | 77                | 79      |

\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.  
 (2) - The value is natural volume - actual volume may be affected by upstream water management.







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**Montana**  
**Basin Outlook Report**  
Natural Resources Conservation Service  
Bozeman, MT

